Hospital Library

The New England JOURNAL of MEDICINE

FORMERLY THE BOSTON MEDICAL AND SURGICAL JOURNAL

Official Organ of The Massachusetts Medical Society
The New Hampshire Medical Society — The Vermont State Medical Society
The New England Surgical Society — The Boston Surgical Society, Inc.
The New England Pediatric Society — The New Hampshire Surgical Club
The New England Obstetrical and Gynecological Society
And The Neisserian Medical Society of Massachusetts

OWNED AND PUBLISHED BY THE MASSACHUSETTS MEDICAL SOCIETY

Volume 205 Number 16 | Domestic $6 per Annum, 25c per Copy Canada $7.04, Foreign $7.56 | OCTOBER 15, 1931 | Published Weekly in Boston at 8 The Fenway

CONTENTS

Myelotomy in the Treatment of Syringomyelia. *Tracy J. Putnam* and *Donald Munro* 747

Sarcoma of the Bladder in Children, with Report of a Case. *E. Ross Mintz* 756

Results of the Use of Stramonium Datura in Parkinson's Disease and Postencephalitic Parkinsonism. *O. J. Menard* and *L. M. Hurxthal* 759

MEDICAL PROGRESS

Progress in Laryngology. *LeRoy A. Schall* 763

CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

Case 17421—Abdominal Pain, Hematemesis, and High Non-Protein Nitrogen of the Blood. *Sven M. Gundersen, George W. Holmes, William B. Breed* and *Tracy B. Mallory.* 773

Case 17422—A Puzzling Case of Anemia in a Man of Sixty-three. *John W. Cass, Jr., Gerald Blake, John I. Bradley* and *Tracy B. Mallory* 773

EDITORIALS

Medicine and Criminology 777

The Tribute to Dr. Walter Bradford Cannon 778

A Society Which Merits the Support of the Medical Profession 778

This Week's Issue 778

Walter Bradford Cannon, M.D. 779

(Contents continued on next page)

Already REPRINTED

Buie on Hemorrhoids & Pruritus Ani

Published in June, Dr. Buie's work has already been reprinted. It has been bought and is being used by thousands of general practitioners and specialists everywhere—and orders are still pouring in! Behind this work is the great wealth of material of the Mayo Clinic—it is a Mayo Clinic Monograph. It calls only for simple equipment—equipment that can be readily used in any physician's office. It stresses treatment based on careful diagnosis rather than mere palliative treatment. It gives full and complete directions for the injection treatment—those cases that should be so treated and those that should not be; instruments required; solutions and their actions; complications and their treatment. It gives surgical treatment as well as non-surgical. Anal Pruritus is accorded the same common-sense presentation, giving a treatment which Dr. Buie has been using for five years with astoundingly successful results.

Octavo of 178 pages, illustrated. By Louis A. Buie, M.D., Section on Proctology, The Mayo Clinic, Rochester, Minn., and Associate Professor of Surgery, The Mayo Foundation, University of Minnesota. Cloth, $3.50 net.

new--ROWNTREE & SNELL on ADDISON'S DISEASE

Drs. Rowntree and Snell present in this new Mayo Clinic Monograph an analysis of 108 cases of Addison's Disease which came to the Mayo Clinic. Clinical investigations at the bedside have been supplemented by observations made from time to time as the patients returned for reëxamination or for modification of treatment. The Swingle and Pfiffner cortical hormone treatment is here detailed as well as the Muirhead treatment.

12mo of 325 pages, illustrated. By Leonard G. Rowntree, M.D., and Albert M. Snell, M.D., Division of Medicine, The Mayo Clinic and The Mayo Foundation, Rochester, Minn. Cloth, $4.00 net.

W. B. SAUNDERS COMPANY **Philadelphia and London**

Entered at the Postoffice at Boston as Second Class Matter

CONTENTS

(Continued)

THE BOSTON MEDICAL LIBRARY
François Rabelais, 1483-1553 ... 781

BOOK REVIEWS
Practical X-ray Treatment. Arthur W. Erskine ... 792
Les Premiers Jours du Nouveau-Né. Marcel Metzger and André Héraux ... 792
"Scharlach—Atiologie, antitoxische Serumtherapie und Schutzimpfung." Prof. R. Kraus, et al. ... 792

CORRESPONDENCE
Articles Accepted by the American Medical Association Council on Pharmacy and Chemistry ... 787
Motion Pictures in the Public Schools of Boston. Solomon H. Rubin ... 784
Publicity Comments Relating to Rabies. P. Nettle ... 786

MISCELLANY
Massachusetts Again ... 772
Mortality Rates ... 772
The New Manual Training Shop for Tuberculosis Patients ... 784
Nurses Employed in Industrial Plants ... 772
A Radio Message Prepared and Sponsored by the Committee on Public Education of the Massachusetts Medical Society for the Department of Public Health. Nerves ... 782
Radium and Breast Cancer ... 772

NEWS ITEMS ... 787

NOTICES ... 788

RECENT DEATH ... 787

REPORTS AND NOTICES OF MEETINGS ... 790

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES ... 791

The Massachusetts Medical Society

The next Annual Meeting of the Massachusetts Medical Society will be held at the Hotel Statler, Boston, on Wednesday, Thursday and Friday, June 8, 9, and 10, 1932.

OFFICERS AND STANDING COMMITTEES ELECTED BY THE COUNCIL, JUNE 9, 1931

PRESIDENT: HALBERT G. STETSON, 39 Federal Street, Greenfield.
VICE-PRESIDENT: THOMAS H. McCARTHY, 142 Main Street, Brockton.
SECRETARY: WALTER L. BURRAGE, 182 Walnut Street, Brookline.
TREASURER: CHARLES S. BUTLER, 257 Newbury Street, Boston.

STANDING COMMITTEES FOR 1931-1932

COMMITTEE ON ARRANGEMENTS
T. H. Lanman, *Chairman;* F. H. Colby, G. P. Reynolds, W. M. Shedden, William R. Morrison.

COMMITTEE ON PUBLICATIONS
Homer Gage, *Chairman;* J. W. Bartol, R. I. Lee, R. B. Osgood, E. W. Taylor.

COMMITTEE ON MEMBERSHIP AND FINANCE
D. N. Blakely, *Chairman;* Gilman Osgood, G. C. Caner, J. E. Fish, H. F. Newton.

COMMITTEE ON ETHICS AND DISCIPLINE
David Cheever, *Chairman;* W. D. Ruston, S. F. McKeen, A. C. Smith, R. L. DeNormandie.

COMMITTEE ON MEDICAL EDUCATION AND MEDICAL DIPLOMAS
P. P. Johnson, *Chairman;* H. P. Stevens, C. H. Lawrence, C. A. Sparrow, E. S. Calderwood.

COMMITTEE ON STATE AND NATIONAL LEGISLATION
H. G. Stetson, *Chairman;* T. J. O'Brien, F. E. Jones, A. W. Mark, Shields Warren.

COMMITTEE ON PUBLIC HEALTH
Dwight O'Hara, *Chairman;* E. F. Cody, F. G. Curtis, G. N. Hoeffel, G. D. Henderson.

COMMITTEE ON MALPRACTICE DEFENSE
F. G. Balch, *Chairman;* E. D. Gardner, F. B. Sweet, R. P. Watkins, A. W. Allen.

OFFICERS OF THE SECTIONS FOR 1932

ELECTED BY THE SECTIONS

The street addresses may be obtained from the Annual Directory

SECTION OF MEDICINE
Chairman, H. L. Smith, Springfield; *Secretary,* Ralph Ellis, Worcester.

SECTION OF SURGERY
Chairman, Richard Miller, Boston; *Secretary,* A. G. Rice, Springfield.

SECTION OF TUBERCULOSIS
Chairman, S. H. Remick, Waltham; *Secretary,* Roy Morgan, Westfield.

SECTION OF PEDIATRICS
Chairman, Edwin T. Wyman, Boston; *Secretary,* Joseph Garland, Boston.

SECTION OF OBSTETRICS AND GYNECOLOGY
Chairman, F. J. Lynch, Boston; *Secretary,* F. A. Pemberton, Boston.

SECTION OF RADIOLOGY AND PHYSIOTHERAPY
Chairman, R. D. Leonard, Melrose; *Secretary,* E. H. Trowbridge, Worcester.

OFFICERS OF THE DISTRICT MEDICAL SOCIETIES

ELECTED BY THE DISTRICT MEDICAL SOCIETIES BETWEEN APRIL 15 AND MAY 15, 1931

The street addresses of the officers may be obtained from the Annual Directory

BARNSTABLE—*President,* G. H. Gray, Hyannis; *Vice-President,* J. L. Chute, Osterville; *Secretary,* J. I. B. Vail, Hyannis; *Treasurer,* H. B. Hart, Yarmouthport; *Librarian,* E. E. Hawes, Hyannis.

BERKSHIRE—*President,* P. J. Sullivan, Dalton; *Vice-President,* A. C. England, Pittsfield; *Secretary,* H. J. Downey, Pittsfield; *Treasurer,* C. T. Leslie, Pittsfield.

BRISTOL NORTH—*President,* B. M. Latham, Mansfield; *Vice-President,* F. V. Murphy, Attleborough; *Secretary,* C. B. Kingsbury, Taunton; *Treasurer,* J. V. Chatigny, Taunton.

BRISTOL SOUTH—*President,* G. C. King, Fall River; *Vice-President,* J. M. Salles, New Bedford; *Secretary and Treasurer,* Charles Shanks, New Bedford.

ESSEX NORTH—*President,* H. H. Nevers, Lawrence; *Vice-President,* O. P. Mudge, Amesbury; *Secretary and Treasurer,* E. S. Bagnall, Groveland.

ESSEX SOUTH—*President,* A. E. Parkhurst, Beverly; *Vice-President,* R. E. Foss, Peabody; *Secretary,* R. E. Stone, Beverly; *Treasurer,* Andrew Nichols, 3rd, Danvers; *Librarian,* C. M. Cobb, Lynn.

FRANKLIN—*President,* H. M. Kemp, Greenfield; *Vice-President,* A. E. Johnson, Jr., Greenfield; *Secretary and Treasurer,* Charles Moline, Sunderland.

HAMPDEN—*President,* G. L. Schadt, Springfield; *Vice-President,* F. H. Allen, Holyoke; *Secretary and Treasurer,* H. L. Smith, Springfield.

HAMPSHIRE—*President,* C. H. Wheeler, Haydenville; *Vice-President,* M. E. Cooney, Northampton; *Secretary and Treasurer,* F. E. O'Brien, Haydenville; *Librarian,* Jane B. Armstrong, Northampton.

MIDDLESEX EAST—*President,* J. H. Blaisdell, Winchester; *Vice-President,* C. W. DeWolf, Wakefield; *Secretary,* A. R. Cunningham, Winchester; *Treasurer,* Richard Dutton, Wakefield; *Librarian,* J. M. Wilcox, Woburn.

MIDDLESEX NORTH—*President,* F. E. Varney, North Chelmsford; *Vice-President,* Pierre Brunelle, Lowell; *Secretary,* T. A. Stamas, Lowell; *Treasurer,* M. D. Bryant, Lowell; *Librarian,* P. J. Meehan, Lowell.

MIDDLESEX SOUTH—*President,* F. W. Gay, Malden; *Vice-President,* A. H. Blake, Somerville; *Secretary,* A. A. Levi, Cambridge; *Treasurer,* Edward Mellus, Newton.

NORFOLK—*President,* W. B. Keeler, Roxbury; *Vice-President,* S. F. Curran, Dorchester; *Secretary,* F. S. Cruickshank, Roslindale; *Treasurer,* G. W. Kaan, Reading.

NORFOLK SOUTH—*President,* M. T. Sweeney, Quincy; *Vice-President,* W. J. McCausland, Quincy; *Secretary, Treasurer and Librarian,* N. R. Pillsbury, South Braintree.

PLYMOUTH—*President,* J. J. McNamara, Brockton; *Vice-President,* C. G. Miles, Brockton; *Secretary,* G. A. Moore, Brockton; *Treasurer,* A. C. Smith, Brockton; *Librarian,* J. H. Weller, Bridgewater.

SUFFOLK—*President,* G. S. Derby, Boston; *Vice-President,* Reginald Fitz, Boston; *Secretary,* L. S. McKittrick, Boston; *Treasurer,* John Rock, Boston.

WORCESTER—President, E. L. Hunt, Worcester; *Vice-President,* E. R. Leib, Worcester; *Secretary,* E. C. Miller, Worcester; *Treasurer,* R. J. Ward, Worcester; *Librarian,* A. C. Getchell, Worcester.

WORCESTER NORTH—*President,* H. R. Nye, Leominster; *Vice-President,* R. A. Rice, Fitchburg; *Secretary,* C. H. Jennings, Fitchburg; *Treasurer,* F. H. Thompson, Jr., Fitchburg.

Fellow Members! We want your support.

The New England
Journal of Medicine

VOLUME 205 OCTOBER 15, 1931 NUMBER 16

MYELOTOMY IN THE TREATMENT OF SYRINGOMYELIA*

BY TRACY J. PUTNAM, M.D.,† AND DONALD MUNRO, M.D.†

POUSSEPP'S PUBLICATION

IN 1926, Poussepp[1] of Tartu (Dorpat) reported the result of operation in two cases of syringomyelia before the International Neurological Congress in Paris. In both, there were typical sensory changes in the hands and spasticity of the legs. The suspected cystic cavity in the cervical cord was exposed and incised, releasing clear fluid under pressure. Improvement in signs and symptoms was observed immediately after operation, and continued progressively for several months. Later[2] he reported two more successful cases in detail.

The procedure is not wholly new. Hassin[3], writing in 1920, stated that he had witnessed such an operation performed by Dr. Karl Meyer, but made no mention of the outcome. Collier[4] devoted considerable space to the question of operation in his article in the *Oxford Loose Leaf Medicine*, first published in 1921. He caused three patients to be operated upon by a surgeon whose name is not given; two experienced "lasting alleviation of symptoms", but the third died. This statement is unchanged in the 1929 edition. He attributed the fatality to the effect of the anaesthetic, which he states is poorly borne by syringomyelics. "It is not likely that more than fifty per cent. of patients will survive." On this account, he reserves the operation for cases in which there is pain or complete disablement. Sicard, in discussing Poussepp's paper, said that he had had Robineau operate on two cases, with immediate improvement, but eventual relapse and death. It is not clear that exactly the same procedure was employed as in Poussepp's cases.

Since the appearance of Poussepp's paper, a large number of cases have been reported by Foerster (hydromyelia)[5], Jirasek and Vitek[6], Zeno and Cames[7], Oppel[8], Lafora[9], Schmieden[10], Gorsky[11], Ellmer[12], Kappis[13], Juzelevskij[14], Frazier[15], and Kuttner[16]. Of the individual case reports, all are favorable. Juzelevskij reports twenty-two cases, in sixteen of which the operation proved beneficial. All of Oppel's six patients were improved, three very strikingly. Professor Zeitlin of Rostov tells me that he has operated successfully on six patients also; one of them had two separate cavities. No deaths have been reported in this group. The criticism has been made that the operation does not remedy the pathological process underlying the disease, but except for Sicard's two cases (if we accept his judgment upon them) definite aggravation of symptoms has not been observed. Difficulty in wound healing has been mentioned by Poussepp and Oppel, and since the incision often lies in an anaesthetic area, it is easy to see how the wound might become torn open.

Improvement following operation has consisted in the relief of pain, if present, decrease of spasticity in the legs, and return of sensation to the hands. In no instance has any patient been rendered symptom free, but many have been able to return to work though previously disabled.

The following is an abstract of the records of our own four cases:

CASE 1. J. B. Male. Age, 55.

The patient was admitted to the Boston City Hospital Neurological Service on September 15, 1926, following a fainting spell. He complained of dull pains in the left shoulder and extending to the fingers for 4-5 years, usually at night, but had worked up to 2½ years before admission. The pain and weakness slowly progressed. Since the onset he had had 3-4 fainting attacks, about which he knew nothing. Sensory changes occurred only 18 months before admission with tingling in the left hand. No temperature sensation changes. Weight 170, 2½ years ago; now 125.

Family history, marital history and *past history* not remarkable.

Physical examination: Essentially negative. Blood pressure: left arm 110/60, right arm 90/50.

Neurological examination: Atrophied trapezii and sternomastoids. Weakness and atrophy of left arm. Exaggerated reflexes on left greater than right. Ba-

*Read before the Boston Society of Psychiatry and Neurology at the Boston Medical Library, March 19, 1931.

From the Department of Neurosurgery, Boston City Hospital.
†Putnam—Associate in Neurosurgery and Assistant Visiting Physician for Neurology, Boston City Hospital. Munro—Visiting Surgeon for Neurosurgery, Boston City Hospital. For records and addresses of authors see "This Week's Issue", page 778.

binski's reflex on the left. Hypoaesthesia to all sensations of the left arm, greater in the hand. Hypoaesthesia to pain and temperature of the right side up to the level of the first dorsal vertebra. Loss of position sense of the left foot. Horner's syndrome, left. Pain in the left arm, so severe as to require morphine on several occasions.

Laboratory Findings: Routine blood and urine examinations were negative. Partial subarachnoid block *with increased protein* in the spinal fluid, but with inconclusive descending lipiodol injection. Ascending lipiodol went up to the seventh and eighth dorsal vertebrae.

Diagnosis: Syringomyelia with gliosis. On account of the pain, operation was recommended.

Operation: Ether. Laminectomy in cervical region. The laminae were very thin and those and the spinous processes of fourth, fifth, sixth, and seventh cervical vertebrae were all removed. Two fusiform enlargements of cord exposed, one at fourth cervical and the other at the sixth cervical. No epidural fat. Widely extensive milky white arachnoiditis. The lower enlargement was split first in midline with escape of one ounce of xanthochromic fluid. The walls were rather black and discolored. The upper enlargement was solid and thought to be a necrotic area. The cord was split in the midline on the posterior surface. The wound was closed in the usual manner.

The postoperative course was uneventful. There was relief of pain in the arm, though never complete. The patient was given a series of x-ray treatments. He was transferred back to the neurological service on January 5, 1927 for postoperative examinations, with the note that the pain in the left arm was distinctly less than before operation.

Physical examination: No change.

Neurological examination: Hypaesthesia for light touch left side, leg and arm. Hyperaesthesia for pain and heat left side, leg and arm. Hypaesthesia for pain and heat right side, leg and arm. Subjective pain in left shoulder relieved by aspirin and codeine. Ataxic spastic gait. Generalized atrophy of musculature most marked in the left arm. Horner on left. Increased reflexes in the left leg. Questionable Babinski's reflex.

This patient was transferred to the Long Island Hospital on February 10, 1927. He complained of pain in the shoulder. In April, sensory examination showed hyperalgesia of the left leg below the knee; impairment of pain, light touch, temperature, muscle and joint sense of both legs; ataxia of both legs; knee jerk greater on left. In May an abscess in the back over the left scapula was incised and healed in three weeks. In July he had pain in the left shoulder and both lower extremities; the left pupil was smaller than the right; the left arm lay limp and atrophied; he could abduct the shoulder to only 60 degrees; there was impaired sensation in the left forearm and hand; the knee jerks were present on both sides; there were no pathological reflexes; girdle pains along costal margin were present; sensation was more marked on the right side. On April 11, 1928, he was reported dead. No autopsy.

Summary: A case of syringomyelia operated late in the disease. At this time a cyst in the lower cervical cord was opened, after evidence of block and pachymeningitis and a solid enlargement of cord above had been demonstrated. Postoperatively there was for a time some slight relief of subjective symptoms. Objectively there was no change. The patient lived for 1 year and five months after operation without any definite evidence of having been helped.

CASE 2. John M. Male. Age, 24. Admitted to the Neurological Service September 18, 1930 complaining of weakness, stiffness and numbness of right leg. From 7 to 19 years of age, he had had attacks of unconsciousness with crude visual hallucinations, followed by nausea, vomiting and headache, for which he was treated with luminal. Since the age of 16, he had had unsteadiness of the right leg, but believed that he had had it for an indefinite period previously. About a year before admission, the disability of the right leg became much worse and was accompanied by numbness. His right arm also became weak so he was unable to raise it above his head. Vision was always poor in the right eye. He had not been able to work for two years.

Family and past history not remarkable.

Physical examination showed a rather short, slight youth. There was an irregularity of the right temporal bone, facial asymmetry, and left dorsal scoliosis. Carious teeth. Heart slightly enlarged and displaced to the left. There were many scars of painless burns and injuries on the fingers.

Neurological examination showed a slight weakness of the left face; atrophy and fibrillary contractions of the left deltoid and trapezius; weakness of grip and atrophy in both hands. The biceps jerks were absent, but the knee and ankle jerks were hyperactive. There was bilateral ankle clonus and Babinski's sign. Position and vibratory sense were diminished in the legs, which were weak and spastic. The optic discs were pale.

Laboratory data: Examination of blood and urine essentially negative. Lumbar puncture: initial pressure 150, normal dynamics, Pandy's test, 9 cells. Blood and spinal fluid Wassermann tests negative. X-rays showed scoliosis.

The diagnosis of syringomyelia was made, and the patient given a series of x-ray treatments. His symptoms continued to progress, however, and he was readmitted to the Neurosurgical Service, January 7, 1931, for operation.

At this time, examination was essentially the same as given above. The areas of loss of heat and cold sensation are shown in Fig. 1. Other modes of sensation were less affected. There was a bilateral paracentral scotoma, and vision in the right eye was 20/150.

Lumbar puncture showed an initial pressure of 200. After removal of 3 c.c., it fell to 120. There were no cells and the protein was 31. On another occasion, it was 83.

Operation was performed on January nineteenth, under avertin and novocain. The laminae of the 2nd to the 6th cervical vertebrae were removed without incident. The canal was distended by a greatly swollen cord. The arachnoid was thickened and adherent to the dura, 2 c.c. of fluid were aspirated from within it and found to contain 3 white cells; protein 28 mg.; chloride 720 mg.; sugar 66 mg. The cavity was then incised in the midline. Fluid under pressure gushed from it. The incision was extended a distance of 15 cm. in all. Some difficulty was encountered in dealing with the abnormally numerous and large vessels over the surface. Jugular compression appeared to increase the flow of fluid from the sac. When all adhesions had been freed, the thin shell of cord lay in longitudinal folds within the enlarged canal. Closure was made as usual.

The patient made an easy operative recovery, and immediately noticed a return of sensation and strength in the fingers. His gait was found improved as soon as he got out of bed. There was marked return of sensation in the legs (see Fig. 2). The reflexes and visual fields remained unchanged.

When the patient was seen on June 1, 1931, it was learned that the x-ray treatments had, by mistake, been given in the lumbar region, so that they can be credited with little effect on his condition. He was able to walk long distances, and even to run. He had begun to drive an automobile, which had been

impossible previously on account of ankle clonus. He could also pitch and catch a ball, which had been one of his great ambitions, and was seeking employment as a chauffeur.

Neurological examination showed a diminution, but girdle and both hands, and spasticity, and ataxia of the legs. In addition there was a history of attacks of loss of consciousness, and bilateral optic atrophy with paracentral scotomas were found. Lumbar puncture disclosed a slightly elevated pressure, a

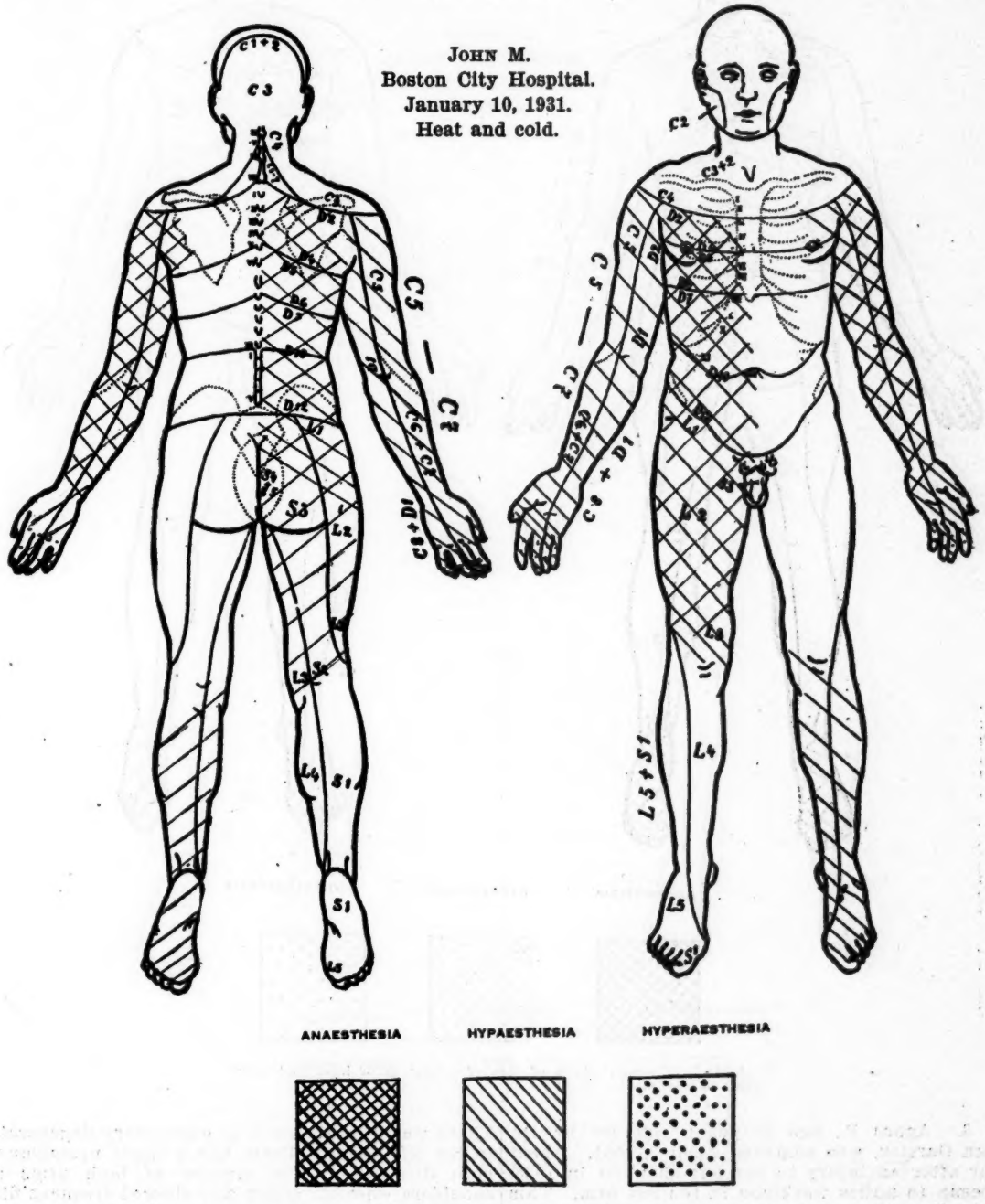


FIG. 1. Case 2. Area of loss of sensation of heat and cold before operation. Pinprick about equally affected over the same area.

not disappearance of the spasticity of the legs, distinct decrease of the atrophy of the hands, and improvement in the symmetry of the face.

Summary: A youth of 24 presented symptoms of syringomyelia dating back to childhood. In addition to loss of temperature sense in the hands and right side of the body, he had atrophy of the right shoulder protein of 83 and 9 cells on one occasion. The symptoms grew worse after x-ray treatment. At operation, a large cyst was opened widely. There was improvement in all symptoms, and objectively a return of sensation and strength in the hands and decrease of spasticity of the legs. Functional improvement was striking.

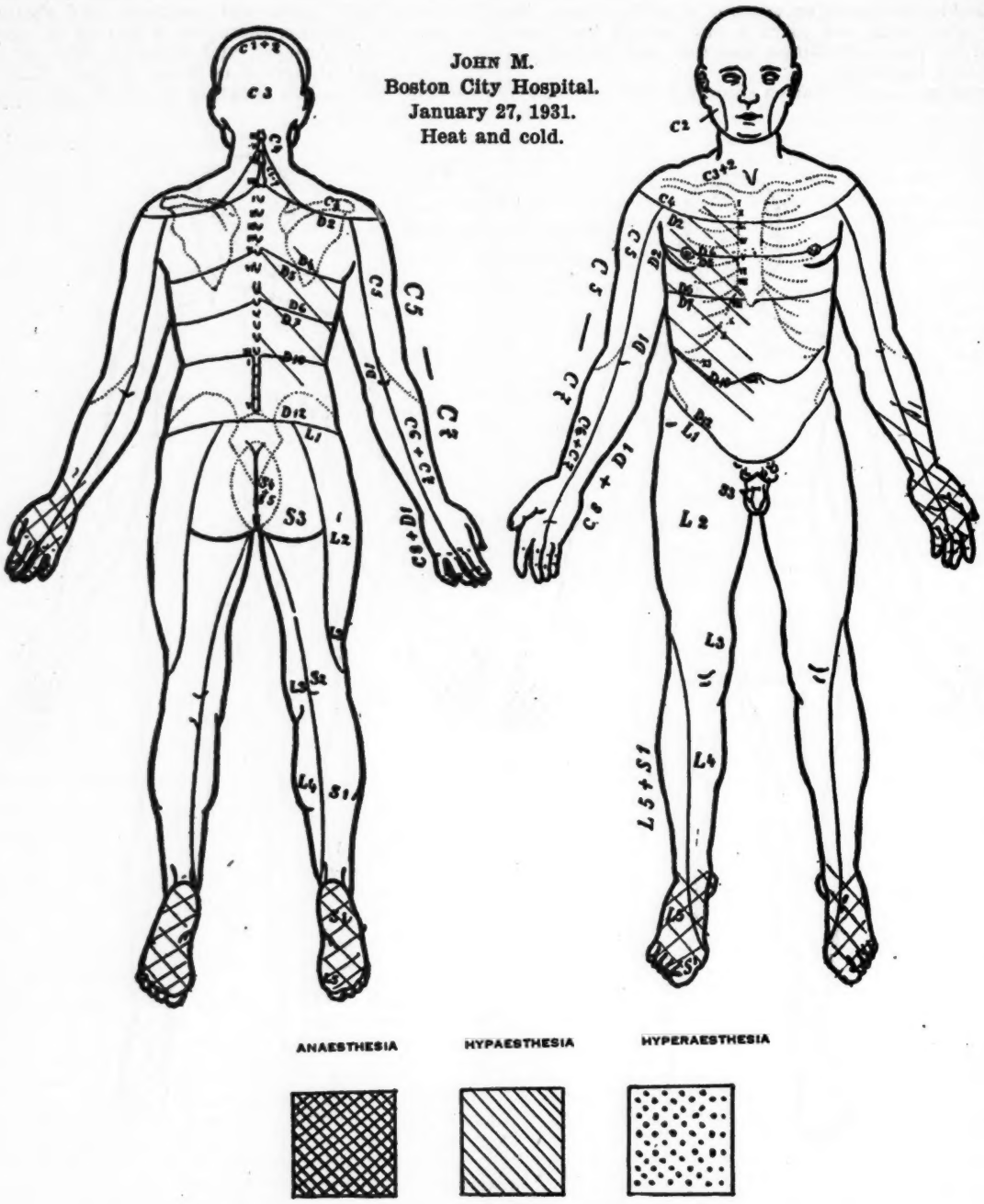


FIG. 2. Case 2. Area of loss of sensation of heat and cold after operation.

CASE 3. Agnes P., age 55 years, referred by Dr. Nathan Garrick, was admitted April 2, 1931. About a year after an injury to her left shoulder in 1923, she began to notice weakness in the left arm. This progressed until the arm became practically useless. The right arm also became so weak that she could not use it to comb her hair, and could only use it in eating by propping the elbow on the table. She was unsteady in walking, and occasionally fell without apparent cause. Eight years previously, she had had a radium treatment of the uterus for metrorrhagia. Following this, she had occasional urinary retention and incontinence, and several attacks of cystitis. She complained of a burning pain across the shoulders and down the left arm, which occasionally felt numb.

There were numerous scars of burns on both hands. There was a small patch of pigmentary degeneration in the left retina. There was a slight nystagmus in both directions. The muscles of both arms and shoulders were atrophied and showed frequent fibrillary twitching. Grip was poor in the right hand and almost absent in the left. Deep reflexes were absent in the arms. The knee-jerks were rather active, but ankle-jerks were not obtained. No clonus or Babinski's reflex.

There was no loss of tactile sense, but pinprick was poorly felt over both shoulders as far down as the tip of the scapula, over the neck, and up to the trigeminal area over the back of the head. (See Fig. 3.) Slight changes of temperature were poorly felt over this area also.

Lumbar puncture yielded a clear fluid with a pres-

sure of 160 mm. and dynamics normal. There were no cells. The total protein was 44 mgs. The Wassermann test was negative.

A diagnosis of syringomyelia was made and operation was decided upon on account of the patient's extreme disability.

The cyst was punctured, but no fluid rose into the needle. A little of it was aspirated, and found to contain 27 mg. of protein. An incision was therefore begun in the midline posteriorly. A huge cavity was revealed, fully 15 millimeters in diameter, lined with a very tough greyish tissue. The cut was gradually

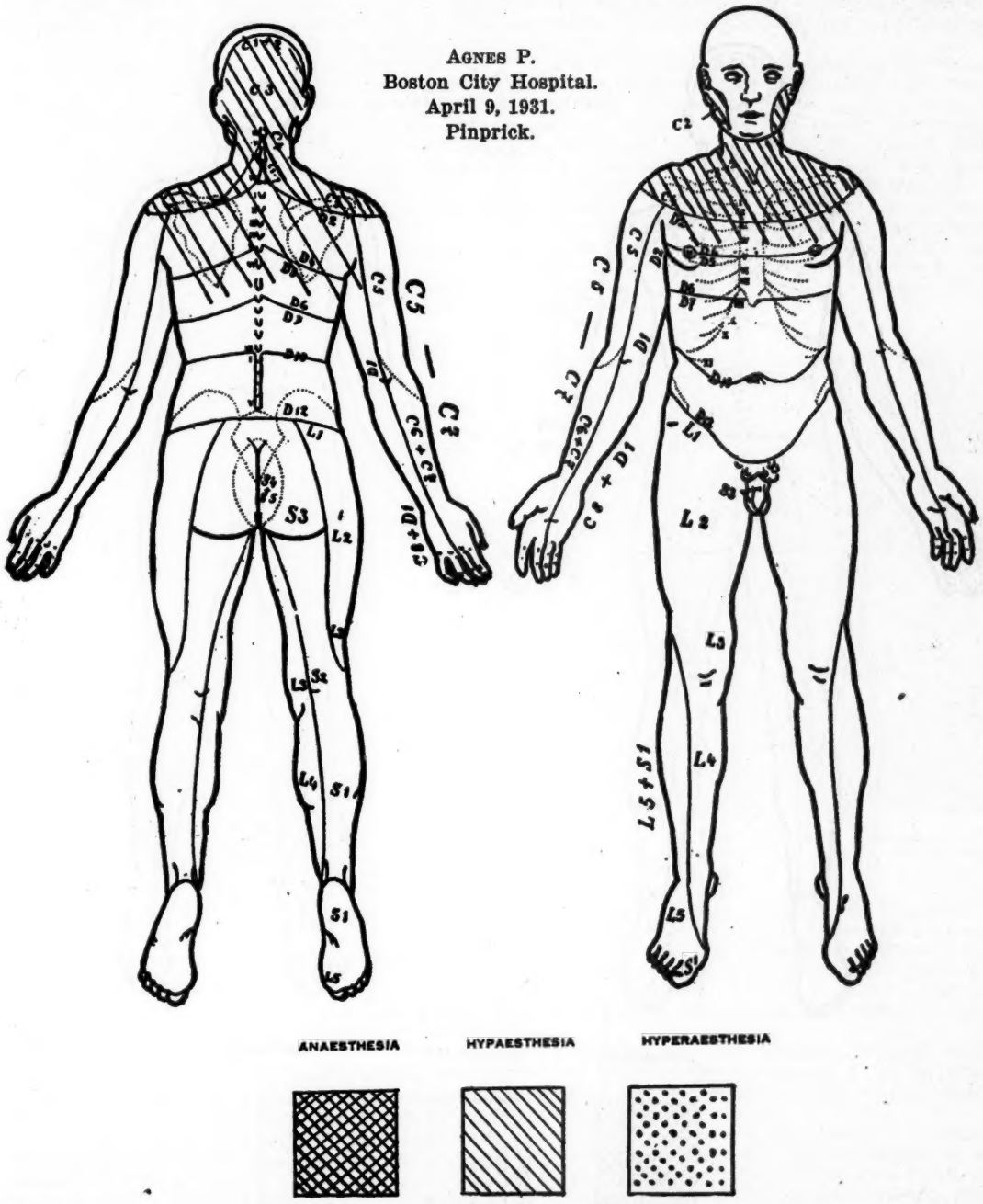


FIG. 3. Case 3. Area of loss of sensation of pinprick before operation. Slight diminution of thermesthesia over the same area.

Operation—April 10th. Avertin and local anesthesia. The dura over the cervical cord was exposed without difficulty. It appeared thin, and the canal seemed to be enlarged. When the dura was incised and retracted, the cord was seen to be the seat of a cystic enlargement, which appeared to fill the canal completely. It was difficult to see how pressure could be transmitted from the ventricles to the lumbar region, except through the walls of the cyst. extended in both directions to the end of the cavity posteriorly under the 7th cervical spine, and to the foramen magnum above where the cavity disappeared out of sight into the medulla. This necessitated cutting several vessels up to 0.5 mm. in diameter. Bleeding was controlled by tamponing and placement of muscle. A catheter was passed downward between arachnoid and dura, but met no obstruction. When bleeding had been entirely stopped and the cord was

clean, the dura and muscle layers were closed with interrupted silk sutures in the usual manner.

The patient made a good recovery. A catheter had to be implanted on account of retention for a week after the operation. Two weeks after operation she was walking, apparently better than before. A week later, she had a recrudescence of cystitis, which resisted the usual forms of treatment for the next six weeks.

In spite of this debilitating experience, the patient experienced considerable improvement. The zone of hypalgesia diminished. (See Fig. 4.) She became able to raise her right hand to her mouth and to comb her hair without supporting the elbow. The left grip improved considerably, and flexion of the forearm became possible. The pain in the shoulders disappeared. Occasional fibrillation continued, and there was no demonstrable improvement in the atrophy of the hands and shoulders.

Summary: A 55 year old woman, in rather feeble general health, had had hypalgesia of the shoulders and neck and atrophy of the deltoids and hand muscles for eight years. The left arm was practically useless. She had some weakness of the legs and ataxia, but no spasticity. She also had urinary disturbances. Following incision of a large syringomyelic cavity, which extended all through the cervical cord and into the medulla, there was slight improvement in sensation and definite gain of strength and motion in both hands. The cystitis was temporarily much worse after the operation, but finally returned to about its preoperative condition.

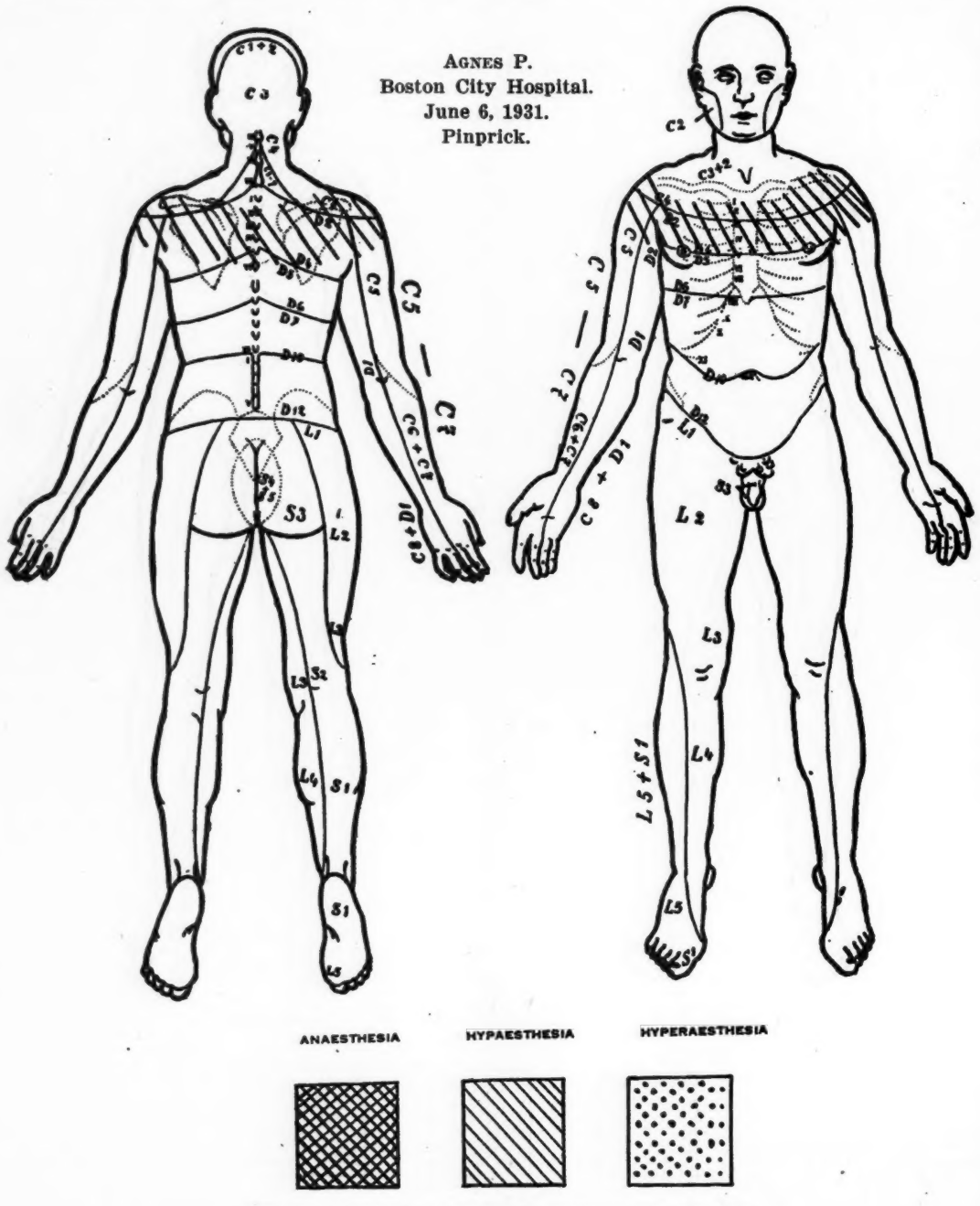


FIG. 4. Case 3. Area of loss of sensation of pinprick after operation.

CASE IV. Elkyn K., a Russian painter of 52, was admitted to the Neurosurgical Service May 10, 1931. The patient considered himself well until November, 1929, when he began to have pain, first in the left shoulder, then in the right. The left arm became weak, and in March 1930, he had to stop work because he could not use his left hand. In May 1930, his legs suddenly became weak and ataxic. He was admitted to this hospital, where it was found that he had pus in his urine and a boggy prostate. On account of the weakness of the left arm, a lumbar puncture was performed, which yielded normal fluid. He was discharged with a diagnosis of chronic prostatitis and syringomyelia. The pain and weakness continued about the same up to the time of his present admission.

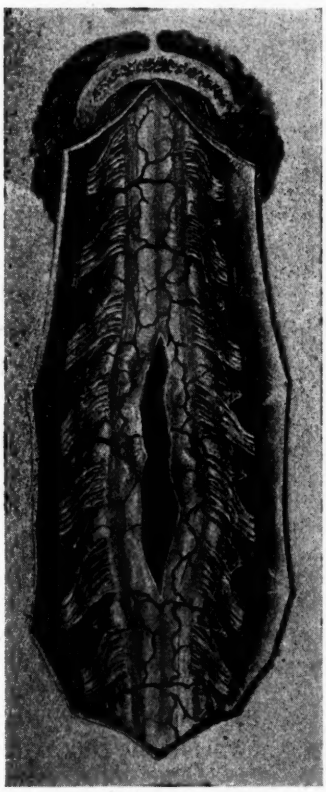


FIG. 5. Case 4. Incision in distended cord. From a sketch made during operation.

General physical examination showed the prostate still enlarged and tender. The lungs were emphysematous.

Neurological examination showed a thoracic scoliosis. There was marked weakness of the extensors and flexors of the left arm and the flexors of the right. The left deltoid was atrophic, the right less so. The patient was unable to lift the left arm above the shoulder. The reflexes were normal except for slight exaggeration of the knee jerks. There was a hypalgesia of the left shoulder and arm, extending down to the waist.

Lumbar puncture showed normal pressure and dynamics, no cells, protein 26, Wassermann reaction negative.

A *diagnosis* of syringomyelia was made.

The patient was given a series of x-ray treatments over the cervical cord. His symptoms grew slightly worse, if anything, and finally operation was decided on.

Operation was performed June 15, 1931, under avertin and local anaesthesia. The laminae of the third to seventh dorsal vertebrae were removed. When an incision was made in the dura, the cord at once bulged through it. The cord appeared to fill the dura sac completely, so that pulsations were not transmitted to the lower part of the incision. The distended cord was punctured with a needle, but the contents were under too low a pressure to flow until aspirated. The fluid obtained had a protein content of 26 mg.

Incision was therefore begun in the midline about the center of the exposed cord. (Fig. 5.) The walls of the cyst were found to be about 2 mm. thick, grey, and tougher than the tissue encountered in previous cases. A vessel about 0.5 mm. in diameter crossed the midline in several places, and gave rise to annoying hemorrhage each time it was cut. This was finally controlled by placement of muscle. The incision was gradually extended to the extremities of the dural opening—a distance of about 12 cm. The cavity exposed did not measure more than 5 mm. in diameter. As it collapsed, a catheter could be passed down outside the arachnoid.

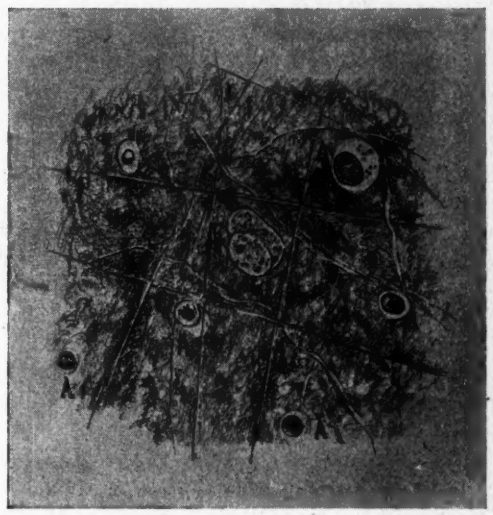


FIG. 6. Case 4. Supravital smear preparation of gliotic tissue removed at operation. A, A, A, A, A, fibrous astrocytes. E, ependymal cells. × 500.

At the upper end of the incision, the glial lining of the cavity was so thick that a small portion of it could be removed for microscopic section. Further gentle manipulation here revealed a small opening into the fourth ventricle, from which a tiny stream of fluid welled. The wound was closed in layers as usual.

A smear of the tissue removed, stained with vital red on a warm stage, showed it to be composed mainly of fibrous astrocytes, with a few ependymal cells. (Fig. 6.)

The patient made a good operative recovery, but has been little relieved. He complained of a new pain in the right shoulder on motion, which was relieved by massage. At the present writing (July 10, 1931) the left arm appears distinctly stronger, and the sensory loss has decreased slightly. Within the last few days, a slight loss of temperature sense has developed in the feet.

Summary: A 52 year old Russian was admitted with a history of pain and weakness in the left arm for two years. Examination showed a loss of pain and temperature sense in that region, with atrophy. The right arm was only slightly affected. At operation, a cavity extending all through the cervical region and into the medulla was incised. Its lining was thick and tough, and a smear showed it to be composed of fibrous astrocytes. There was a small

communication between the cavity and the fourth ventricle. The patient made a good operative recovery, but his neurological condition was only slightly improved. Some new symptoms developed several weeks after operation.

THE ETIOLOGY AND PATHOGENESIS OF SYRINGOMYELIA IN RELATION TO OPERATION

The etiological factor involved in syringomyelia remains unknown. The prevalent opinion appears to be that it is a congenital abnormality, since it often appears in siblings[17] and in conjunction with other congenital defects such as spina bifida and hydrocephalus. A strain of rabbits has been reported in which syringomyelia, often fatal, appears as a recessive Mendelian characteristic[18]. In many instances, small cavities are found in cords of patients showing no symptoms during life. Scoliosis dating to early childhood, facial asymmetry and heterochromia of the irides are frequent concomitants, which all point to an onset in infancy, even though neurological symptoms appear only at a later date. The occasional occurrence of tumors in the gliotic cavities need not argue against a congenital origin of the disease.

It is not easy to reconcile this point of view with the rather frequent concurrence of syringomyelia with optic neuritis[19], acromegaly[20] and multiple sclerosis[21] and its appearance in animals with encephalomyelitis[22]. Such cases are too numerous to be explained on the basis of coincidence, but apparently no other explanation has been advanced for them.

Typical syringomyelic cavities are lined with yellowish or brownish glial tissue. There are numerous blood vessels, sometimes with thickened hyaline walls. Sometimes a large cavity exists with a very thin lining, at other times a small cavity lies in the midst of an extensive gliotic mass. The cavity may, or may not, communicate with the central canal. In some instances, actual neoplastic degeneration appears to have taken place[23].

It is obvious that incision of the cyst can scarcely be expected to arrest the gliosis. One point stands out in the surgical reports, however, namely the fact that the fluid is under pressure, and is often described as actually spurting through the incision. Unquestionably, the degree of relief of pressure is the deciding factor in the relief of symptoms, whether the distended cord blocks the canal or not.

Hydromyelia is distinguished pathologically from syringomyelia by the lack of gliosis in the walls of the cyst. Differential diagnosis of the two conditions is difficult or impossible, and the operative indications should be the same in both. Foerster considered the cavity in his case to be hydromyelic rather than syringomyelic.

DIAGNOSIS OF SYRINGOMYELIA

The characteristic manifestations of syringomyelia—loss of pain and temperature sensation in the hands, followed by atrophy—is familiar to all physicians. The symptoms referable to the spinal cord are well described in standard textbooks. Mention is seldom made of pain, of optic atrophy, or of convulsions, however; yet these appear with moderate frequency in the case-reports reviewed.

Especial interest is attached to the spinal fluid findings. Most textbooks state that the spinal fluid is normal, but in all of our cases, and in several others in the literature, evidence of block was found. This may consist of no more than an increase in protein. The walls of the cyst may be so thin that pressure is partially transmitted through them, as in our Cases 2, 3 and 4. As even partial block probably constitutes an indication for operation, particular attention should be paid to this point. In doubtful cases, double puncture or the injection of radio-opaque oil might be decisive. Jirasek suggests puncturing the cavity and filling it with iodized oil.

COMPARISON OF OPERATIVE WITH X-RAY TREATMENT

In recent years, radiation has become the standard treatment for syringomyelia, and we have personally seen cases enormously benefited by it. Delherm and Morel-Kahn[24] have collected several hundred cases from the literature, with improvement in over 70%. Their own results were slightly less good and about 33% of their patients were worse following treatment.

It is natural to suppose that radiation acts on the glial lining of the cavity or its blood vessels, rather than upon its fluid contents. Indeed, it would not be surprising if the pressure within the cavity were actually increased by the breakdown of the cells in its wall. Thus, operation and radiation should theoretically supplement each other.

Diathermy, ultraviolet radiation and the use of various drugs have been proposed, but have not been generally accepted.

OPERATIVE TECHNIQUE

The operation itself is about as simple as a laminectomy can be. In view of Collier's experience, it might be better to avoid ether. If there is doubt as to the presence of a cavity when the cord is exposed, it may be needled. Poussepp advises incising the cord posterior to the pyramidal tract, or through the lateral column. We have used a midline incision in all of the cases reported, and also in other conditions, without ill results. Hemorrhage has apparently not presented any real problem, but *a priori* it would seem wise to be

extremely meticulous to have the lips of the cord incision absolutely dry, to minimize the likelihood of fibrinous and later fibrous adhesions. Closure of the incision appears to have occurred in one of Foerster's cases. Frazier suggests that a piece of rubber tissue be left in the cord incision. It is difficult to foresee whether this would make matters better or worse.

The danger of separation of the wound edges is apparently a real one. It is probably diminished by operation under local anaesthesia. Closure should be made with extreme care, and the incision reinforced with a posterior figure-of-eight bandage or adhesive strapping.

DISCUSSION

The cases reported in the literature probably give a somewhat erroneous impression of the success of the operation. In the largest series, over a quarter of the patients experienced no benefit, and improvement was extremely slight, if not absent, in one of our own. Doubtless a large number of failures and disappointments remain unrecorded. Moreover, it is not known how long the improvement will last, or even whether the incision in the cord will close.

With this reservation, the results are surprisingly good, especially in view of the fact that few mild cases are included in the favorable reports. In Oppel's series, the greatest improvement occurred in the earlier cases. It is possible that the time will come when operation will follow the diagnosis of syringomyelia as a matter of course, to prevent the formation of large cavities.

It is our feeling, however, that such a time has not yet come. Operation is to be urged in cases in which radiation produces no improvement, and especially in those in which there is pain or disability. In other cases, the individual circumstances must be carefully weighed, and possible dangers balanced against possible benefits. However, we now have at our disposal a second resource against a disease which two decades ago was considered hopeless.

CONCLUSIONS

1. Four additional cases of syringomyelia treated by myelotomy are presented. One patient showed practically no improvement. Immediate improvement was slight in two others, but striking in one instance.

2. From a survey of the literature, it appears that the operation has had a favorable, but not curative, result in the great majority of cases. In some instances the results have been permanent, in others the disease has progressed. Symptoms have apparently not been increased by operation. Only one fatality is recorded in cases reported since 1926.

3. X-ray treatment probably acts by arresting gliosis, operation by relieving pressure. Sometimes one, sometimes the other may be more effective. Radiation should always be employed as an adjunct to operation.

4. Pending further experience, we believe that operation should be reserved for patients who are not relieved by x-ray treatment, or who have root-pains, or spinal block, or who are incapacitated by the disease. To these it offers real hope of improvement.

REFERENCES

1 Poussepp, L.: Traitement operatoire de la syringomyélie. Rev. neurol. 1:1171, 1926.

2 Poussepp, L.: Traitement chirurgical de la syringomyélie. Arch. franco-belges de chir. 30:293, 1927.

3 Hassin, G.: A contribution to the histopathology and histogenesis of syringomyelia. Arch. Neurol. and Psychiat. 3:130, 1920.

4 Collier, J.: Syringomyelia. Oxford Loose-leaf Medicine, vol. 5, 1921.

5 Foerster, O.: Die Leitungsbahnen des Schmerzgefuhls. Urban und Schwartzenburg, Berlin. 1928, p. 301.

*6 Jirasek, J., and Vitek, J.: Operation for syringomyelia by Poussepp's method. Casop. lék. cesk. 66:1048, 1927.

7 Zeno, A., and Cames, O.: Résultats immédiats d'une operation pour syringomyelie. Bull. et mem. soc. nat. de chir. 54:1437, 1928.

8 Oppel, V.: Erfahrungen mit der operativen Behandlung der Syringomyelie nach Poussepp. Arch. f. klin. Chir. 155: 416, 1929.

*9 Lafora, G.: El tratamento quirurgica de la siringomielia (método de Poussepp) y las ideas modernas patogenicos. Med. ibera 2:641, 1929.

10 Schmieden, V.: Zur chirurgische Behandlung der Syringomyelie. Zentralb. f. Chir. 56:2114, 1929.

*11 Gorsky, R.: Cases of surgical interference in syringomyelia. Vestnik Khir. 16-17:150, 1929.

12 Ellmer: Zur operativen Behandlung der Syringomyelie. Zentralbl. f. Chir. 57:2209, 1930.

13 Käppis: Zur operativen Behandlung der Syringomyelie. Zentralbl. f. Chir. 57:2875, 1930.

14 Juzelevskij, A.: Die chirurgische Behandlung der Syringomyelie nach Poussepp. Beitr. z. klin. Chir. 148:389, 1930.

15 Frazier, C.: Shall syringomyelia be added to lesions appropriate for surgical intervention? J. A. M. A. 95:1911, 1930.

16 Kuttner: Poussepp'sche Operation bie Syringomyelie. Zentralbl. f. Chir. 58:468, 1931.

17 Tenner, J.: Syringomyelie bei Vater und Tochter. Deutsche Ztschr. f. Nervenh. 106:13, 1928.

18 Ostertag, B.: Weiterere Untersuchungen ueber vererbbare Syringomyelie des Kaninchens. Deutsche Ztschr. f. Nervenh. 116:147, 1930.

19 Herrmann, G.: Anatomischer Befund bei Syringomyelie mit Opticus-Atrophie. Ztschr. f. d. ges. Neurol. u. Psychiat. 111:713, 1927.

20 MacBride, H. J.: Syringomyelia in association with acromegaly. J. Neurol. & Psychopathol. 6:114, 1925.

21 Stengel, E.: Akute ascendierende multiple Sklerose und Syringomyelie. Ztsch. f. d. ges. Neurol. u. Psychiat. 122:800, 1929.

22 Levaditi, C., Lépine, P., and Schoen, R.: Méchanisme pathogénique des formations cavitaires du névraxe: porencéphalie et syringomyélie. Ann. Inst. Pasteur, 43:1465, 1929.

23 Kirch, E.: Ueber die pathogenetischen Beziehungen zwischen Rückenmarksgeschwülsten und Syringomyelie. Ztschr. f. d. ges. Neurol. u. Psychiat. 117:231, 1928.

24 Delherm, L. and Morel-Kahn, M.: Treatment of syringomyelia by roentgenotherapy. Am. J. Surg. 9:302, 1930.

*Abstracted in Zentralblatt für Chirurgie.

communication between the cavity and the fourth ventricle. The patient made a good operative recovery, but his neurological condition was only slightly improved. Some new symptoms developed several weeks after operation.

THE ETIOLOGY AND PATHOGENESIS OF SYRINGOMYELIA IN RELATION TO OPERATION

The etiological factor involved in syringomyelia remains unknown. The prevalent opinion appears to be that it is a congenital abnormality, since it often appears in siblings[17] and in conjunction with other congenital defects such as spina bifida and hydrocephalus. A strain of rabbits has been reported in which syringomyelia, often fatal, appears as a recessive Mendelian characteristic[18]. In many instances, small cavities are found in cords of patients showing no symptoms during life. Scoliosis dating to early childhood, facial asymmetry and heterochromia of the irides are frequent concomitants, which all point to an onset in infancy, even though neurological symptoms appear only at a later date. The occasional occurrence of tumors in the gliotic cavities need not argue against a congenital origin of the disease.

It is not easy to reconcile this point of view with the rather frequent concurrence of syringomyelia with optic neuritis[19], acromegaly[20] and multiple sclerosis[21] and its appearance in animals with encephalomyelitis[22]. Such cases are too numerous to be explained on the basis of coincidence, but apparently no other explanation has been advanced for them.

Typical syringomyelic cavities are lined with yellowish or brownish glial tissue. There are numerous blood vessels, sometimes with thickened hyaline walls. Sometimes a large cavity exists with a very thin lining, at other times a small cavity lies in the midst of an extensive gliotic mass. The cavity may, or may not, communicate with the central canal. In some instances, actual neoplastic degeneration appears to have taken place[23].

It is obvious that incision of the cyst can scarcely be expected to arrest the gliosis. One point stands out in the surgical reports, however, namely the fact that the fluid is under pressure, and is often described as actually spurting through the incision. Unquestionably, the degree of relief of pressure is the deciding factor in the relief of symptoms, whether the distended cord blocks the canal or not.

Hydromyelia is distinguished pathologically from syringomyelia by the lack of gliosis in the walls of the cyst. Differential diagnosis of the two conditions is difficult or impossible, and the operative indications should be the same in both. Foerster considered the cavity in his case to be hydromyelic rather than syringomyelic.

DIAGNOSIS OF SYRINGOMYELIA

The characteristic manifestations of syringomyelia—loss of pain and temperature sensation in the hands, followed by atrophy—is familiar to all physicians. The symptoms referable to the spinal cord are well described in standard textbooks. Mention is seldom made of pain, of optic atrophy, or of convulsions, however; yet these appear with moderate frequency in the case-reports reviewed.

Especial interest is attached to the spinal fluid findings. Most textbooks state that the spinal fluid is normal, but in all of our cases, and in several others in the literature, evidence of block was found. This may consist of no more than an increase in protein. The walls of the cyst may be so thin that pressure is partially transmitted through them, as in our Cases 2, 3 and 4. As even partial block probably constitutes an indication for operation, particular attention should be paid to this point. In doubtful cases, double puncture or the injection of radio-opaque oil might be decisive. Jirasek suggests puncturing the cavity and filling it with iodized oil.

COMPARISON OF OPERATIVE WITH X-RAY TREATMENT

In recent years, radiation has become the standard treatment for syringomyelia, and we have personally seen cases enormously benefited by it. Delherm and Morel-Kahn[24] have collected several hundred cases from the literature, with improvement in over 70%. Their own results were slightly less good and about 33% of their patients were worse following treatment.

It is natural to suppose that radiation acts on the glial lining of the cavity or its blood vessels, rather than upon its fluid contents. Indeed, it would not be surprising if the pressure within the cavity were actually increased by the breakdown of the cells in its wall. Thus, operation and radiation should theoretically supplement each other.

Diathermy, ultraviolet radiation and the use of various drugs have been proposed, but have not been generally accepted.

OPERATIVE TECHNIQUE

The operation itself is about as simple as a laminectomy can be. In view of Collier's experience, it might be better to avoid ether. If there is doubt as to the presence of a cavity when the cord is exposed, it may be needled. Poussepp advises incising the cord posterior to the pyramidal tract, or through the lateral column. We have used a midline incision in all of the cases reported, and also in other conditions, without ill results. Hemorrhage has apparently not presented any real problem, but *a priori* it would seem wise to be

extremely meticulous to have the lips of the cord incision absolutely dry, to minimize the likelihood of fibrinous and later fibrous adhesions. Closure of the incision appears to have occurred in one of Foerster's cases. Frazier suggests that a piece of rubber tissue be left in the cord incision. It is difficult to foresee whether this would make matters better or worse.

The danger of separation of the wound edges is apparently a real one. It is probably diminished by operation under local anaesthesia. Closure should be made with extreme care, and the incision reinforced with a posterior figure-of-eight bandage or adhesive strapping.

DISCUSSION

The cases reported in the literature probably give a somewhat erroneous impression of the success of the operation. In the largest series, over a quarter of the patients experienced no benefit, and improvement was extremely slight, if not absent, in one of our own. Doubtless a large number of failures and disappointments remain unrecorded. Moreover, it is not known how long the improvement will last, or even whether the incision in the cord will close.

With this reservation, the results are surprisingly good, especially in view of the fact that few mild cases are included in the favorable reports. In Oppel's series, the greatest improvement occurred in the earlier cases. It is possible that the time will come when operation will follow the diagnosis of syringomyelia as a matter of course, to prevent the formation of large cavities.

It is our feeling, however, that such a time has not yet come. Operation is to be urged in cases in which radiation produces no improvement, and especially in those in which there is pain or disability. In other cases, the individual circumstances must be carefully weighed, and possible dangers balanced against possible benefits. However, we now have at our disposal a second resource against a disease which two decades ago was considered hopeless.

CONCLUSIONS

1. Four additional cases of syringomyelia treated by myelotomy are presented. One patient showed practically no improvement. Immediate improvement was slight in two others, but striking in one instance.

2. From a survey of the literature, it appears that the operation has had a favorable, but not curative, result in the great majority of cases. In some instances the results have been permanent, in others the disease has progressed. Symptoms have apparently not been increased by operation. Only one fatality is recorded in cases reported since 1926.

3. X-ray treatment probably acts by arresting gliosis, operation by relieving pressure. Sometimes one, sometimes the other may be more effective. Radiation should always be employed as an adjunct to operation.

4. Pending further experience, we believe that operation should be reserved for patients who are not relieved by x-ray treatment, or who have root-pains, or spinal block, or who are incapacitated by the disease. To these it offers real hope of improvement.

REFERENCES

1 Poussepp, L.: Traitement operatoire de la syringomyélie. Rev. neurol. 1:1171, 1926.

2 Poussepp, L.: Traitement chirurgical de la syringomyélie. Arch. franco-belges de chir. 30:293, 1927.

3 Hassin, G.: A contribution to the histopathology and histogenesis of syringomyelia. Arch. Neurol. and Psychiat. 3:130, 1920.

4 Collier, J.: Syringomyelia. Oxford Loose-leaf Medicine, vol. 5, 1921.

5 Foerster, O.: Die Leitungsbahnen des Schmerzgefuhls. Urban und Schwartzenburg, Berlin. 1928, p. 301.

*6 Jirasek, J., and Vitek, J.: Operation for syringomyelia by Poussepp's method. Casop. lék. cesk. 66:1048, 1927.

7 Zeno, A., and Cames, O.: Résultats immédiats d'une operation pour syringomyelie. Bull. et mem. soc. nat. de chir. 54:1437, 1928.

8 Oppel, V.: Erfahrungen mit der operativen Behandlung der Syringomyelie nach Poussepp. Arch. f. klin. Chir. 155: 416, 1929.

*9 Lafora, G.: El tratamento quirurgica de la siringomielia (método de Poussepp) y las ideas modernas patogenicos. Med. ibera 2:641, 1929.

10 Schmieden, V.: Zur chirurgische Behandlung der Syringomyelie. Zentralb. f. Chir. 56:2114, 1929.

*11 Gorsky, R.: Cases of surgical interference in syringomyelia. Vestnik Khir. 16-17:150, 1929.

12 Ellmer: Zur operativen Behandlung der Syringomyelie. Zentralbl. f. Chir. 57:2209, 1930.

13 Käppis: Zur operativen Behandlung der Syringomyelie. Zentralbl. f. Chir. 57:2875, 1930.

14 Juzelevskij, A.: Die chirurgische Behandlung der Syringomyelie nach Poussepp. Beitr. z. klin. Chir. 148:389, 1930.

15 Frazier, C.: Shall syringomyelia be added to lesions appropriate for surgical intervention? J. A. M. A. 95:1911, 1930.

16 Kuttner: Poussepp'sche Operation bie Syringomyelie. Zentralbl. f. Chir. 58:468, 1931.

17 Tenner, J.: Syringomyelie bei Vater und Tochter. Deutsche Ztschr. f. Nervenh. 106:13, 1928.

18 Ostertag, B.: Weiterere Untersuchungen ueber vererbbare Syringomyelie des Kaninchens. Deutsche Ztschr. f. Nervenh. 116:147, 1930.

19 Herrmann, G.: Anatomischer Befund bei Syringomyelie mit Opticus-Atrophie. Ztschr. f. d. ges. Neurol. u. Psychiat. 111:713, 1927.

20 MacBride, H. J.: Syringomyelia in association with acromegaly. J. Neurol. & Psychopathol. 6:114, 1925.

21 Stengel, E.: Akute ascendierende multiple Sklerose und Syringomyelie. Ztsch. f. d. ges. Neurol. u. Psychiat. 122:800, 1929.

22 Levaditi, C., Lépine, P., and Schoen, R.: Méchanisme pathogénique des formations cavitaires du névraxe: porencéphalie et syringomyélie. Ann. Inst. Pasteur, 43:1465, 1929.

23 Kirch, E.: Ueber die pathogenetischen Beziehungen zwischen Rückenmarksgeschwülsten und Syringomyelie. Ztschr. f. d. ges. Neurol. u. Psychiat. 117:231, 1928.

24 Delherm, L. and Morel-Kahn, M.: Treatment of syringomyelia by roentgenotherapy. Am. J. Surg. 9:302, 1930.

*Abstracted in Zentralblatt für Chirurgie.

SARCOMA OF THE BLADDER IN CHILDREN, WITH REPORT OF A CASE

BY E. ROSS MINTZ, M.D.*

SARCOMA of the bladder in children is of rather rare occurrence. The literature on the subject, although not extensive, is very confusing. Albarran[1], Concetti[2], Munwes[3], Judd[4], Watson[5], Robitshek[6], O'Neil[7] and Mixter[8] have reported cases; Deming[9] reviewed the literature in 1924 and reported sixty-four cases of primary bladder tumors in the first decade of life. There were two cases below one year of age, eighteen from one to two, eleven from two to three, nine from three to four, nine from four to five, one from five to six, six from six to seven and two from seven to eight, four from eight to nine, and two from nine to ten. It will be noticed that forty-nine out of the sixty-four, or about seventy per cent., occurred in the first five years. Since 1924, six other cases have been reported in the literature. Unquestionably other cases of sarcoma of the bladder have occurred which have not been described. It is significant that of one hundred and sixteen cases of bladder tumors observed by Buerger[10], one hundred and forty-five cases tabulated by Geraghty[11], thirty-five cases by Barringer[12], two hundred and twenty-two cases by Lenormant[13], three hundred and thirty-three cases by Scholl[14] and three hundred and thirty-eight cases by Young[15], not a single one occurred in an infant.

ETIOLOGY

The etiology of this type of tumor is still obscure. Many hypotheses have been formulated.

Thompson[16] believes that the growths were congenital. Concetti[2] feels that the occurrence of the majority of the growths in children under five years of age speaks for an embryonal origin. Fuller argues that, since most of the sarcomas originate from the base of the bladder, the causal factor must be irritation; he states that the urine secreted by the kidney and deposited at the base of the bladder is responsible for the formation of this tumor. Some authors believe that the tumor should be classed as a teratoma.

PATHOLOGY

The pathology is extremely varied. In Concetti's[2] cases thirteen were sarcoma, two lymphoblastoma, seven fibrosarcoma, eight myxoma, two myxosarcoma, six fibrosarcoma, one dermoid cyst and three were undetermined. In Cecil's[17] one hundred and ninety-three cases seventy-two were round cell sarcoma, fourteen spindle cell sarcoma, nine myxosarcoma, etc. The remainder included cases of giant cell sarcoma, telangiectatic sarcoma, chondrosarcoma and fibro- and myxosarcoma and mixed cell sarcoma. The tumor is usually cauliflower-like in shape, markedly soft, friable, at times edematous and, in our case, markedly injected. In most of the cases the tumors were sessile. In Cecil's one hundred and ninety-three cases seventy-eight were sessile and twenty-eight pedunculated. Ulceration rarely occurs in this type of tumor. Some authors attribute this to the fact that these tumors originate from the submucosa or intermuscular substance and for this reason they always invade the bladder wall. Cecil believes that this fact accounts for the prompt recurrence of the tumor when an operation other than resection is done.

The growth of the tumor is extremely rapid and ofttimes invasive, encroaching upon the vulva, vagina and rectum. Most of the authors agree that this neoplasm does not metastasize early. The case histories seem to bear out this point; in the majority of instances no metastases are found. In Albarran's[1] fifty-three cases they occurred only seven times; in Concetti's[2] forty-two cases, only once. Munwes[3] states that metastases occurred in fifty per cent. of his cases. The metastasis is usually to the lungs, or to the sacral and retroperitoneal glands. Since 1924, in only one instance in the literature, a case described by Weiss and Dreyfus[18] in 1928, was there metastasis to the lung.

SYMPTOMATOLOGY

A word as to the symptomatology in infants as compared to that in adults. There seems to be one outstanding fact, namely that although hematuria is the presenting symptom in most cases of sarcoma in adults, it very rarely presents itself as an initial symptom in cases below ten years of age. Descalopoulous, in 1929, collected twenty cases of sarcoma in infants and found hematuria a presenting sign in only four. He feels that if hematuria does occur in sarcoma of the bladder in infants, it is not so profuse as that which occurs in adults and usually happens at the end of micturition. He also states that retention of urine is a frequent occurrence and is due to the infiltration of the bladder neck by the neoplasm and to consequent loss of bladder contractility. This fact is well borne out in many of the cases. In Weiss and Dreyfus'[18] case of a sarcoma in a child six months old, acute retention was the presenting sign. In Stepita's[19] case of a spindle cell sar-

*Mintz—Surgeon, Massachusetts General Hospital. For record and address of author see "This Week's Issue", page 778.

coma, dysuria of three months' duration was the chief complaint. In Mixter's[8] patient, a child of three and a half years, frequency and bed-wetting were the initial complaints. In Helmholz's[20] case of a girl sixteen months old, straining on urination and defecation of two months' duration were the first symptoms. In Descalopoulous'[21] case in a baby nine months old, acute retention and a generalized impairment of health were the initial complaints. There are many other cases reported, in which this is true, but it is not necessary to quote them all. However, if one scrutinizes very carefully the cases of sarcoma that have been reported in individuals above ten years of age, he finds that hematuria is usually the presenting sign. There are a few cases where it has occurred as the initial symptom in infants. In Stepita's[19] case of a male four years of age, pain on micturition and priapism were complained of. Suprapubic pain is present in a good number of the cases. In a large number of the cases in infants a mass could be palpated suprapubically, while this did not occur so frequently in adults. In Robitshek's[6] case of an infant four and a half years old intermittent acute retention was a predominating symptom. In Helmholz's[20] case of a girl sixteen months old a small tumor mass was extruded at the urethra.

DIAGNOSIS

Cystitis, vesical calculi and embryological defects have to be considered in the differential diagnosis. Before the invention of the cystoscope the diagnosis was purely one of chance. Today, however, cystoscopy seems to be the only sure method of diagnosis and in most of the reported cases the diagnosis was made with the aid of the cystoscope. In cases where a cystoscopy is not possible, a cystogram should be taken. Stone can be ruled out by x-ray.

COURSE

The course of the disease is invariably fatal, varying from one week, in Descalopoulous'[21] case, to eleven months, in Deming's case[9]. Recurrences are usually the rule and death the ultimate outcome. There are, however, a few cases of cure reported. O'Neil[7] states that clinically all have one point in common, that is they almost all tend to recur and are uniformly fatal. Operation hastens the ultimate outcome. In Albarran's[1] series, in fifty per cent. of his operative cases the patient died immediately after operation and in ten cases rapid recurrence took place. In Watson's[5] tabulated series sixty-three per cent. died immediately after the operation. Munwes'[3] series disclosed that fifty per cent. died immediately after operation. Three of his patients were cured for five years. In Gardner's[22] cases six out of seven died after operation. Klein[23] in 1895 reported a cure in a male ten years old; suprapubic cystotomy was done and the tumor and part of the bladder wall resected. In Mixter's[8] case, in 1917, of embryo-fibro-sarcoma in a child three and a half years of age, the tumor was excised; three months later cystoscopy showed the bladder to be negative. There are a few other instances of reported cures, but they do not appear to be reliable.

Due to inevitable recurrences of the tumor, the only hope ever to cure a patient with sarcoma of the bladder lies in a total cystectomy. Deming[9] feels that not only should a total cystectomy be done but a resection of the urethra should also be performed as well.

SUMMARY

(1) Approximately fifty-five authentic cases of sarcoma of the bladder have been reported in children under five years of age.

(2) The etiology is obscure. The pathology is varied. All histoid elements have been reported.

(3) Hematuria is usually not a presenting symptom. Frequency, dribbling, acute retention and bed-wetting are common symptoms.

(4) Recurrences are frequent and early. Metastases are not common. The course is invariably fatal. Operation seems to hasten death. In all of the recent cases diagnosis was made by cystoscopy.

(5) Partial excision of bladder wall, excision of the tumor and diathermy have been tried with little success. Deming feels that total cystectomy with resection of the urethra is the only hope for cure.

CASE REPORT

A white, native male, five years old, entered the Children's Hospital, June 22, 1929, complaining of frequency of urination.

P. I. Four months previously the patient had had a rash all over the body, accompanied by pyrexia and sleepiness. No sore throat was present. The skin peeled. From this time on the patient complained of frequency of urination and nocturia.

Two months before admission he vomited twice and complained of a stomach and backache. One morning he came home from school with wet trousers. At that time adhesions of the prepuce were noted and these were broken up by the family physician.

Five weeks before admission circumcision was performed in the out-patient department (Children's Hospital). There was no relief of symptoms. He still had frequency of urination every half hour with marked dysuria and pain. Pain, relieved by rubbing, was also complained of in the legs.

One week later pain in the stomach and vomiting were noted. The next two days he passed a few drops of blood on four or five occasions. Dribbling occurred continually.

P. E. A large, soft, fluctuant tumor was felt in the mid-abdomen from symphysis to umbilicus, presumably a distended bladder. Attempts to catheter-

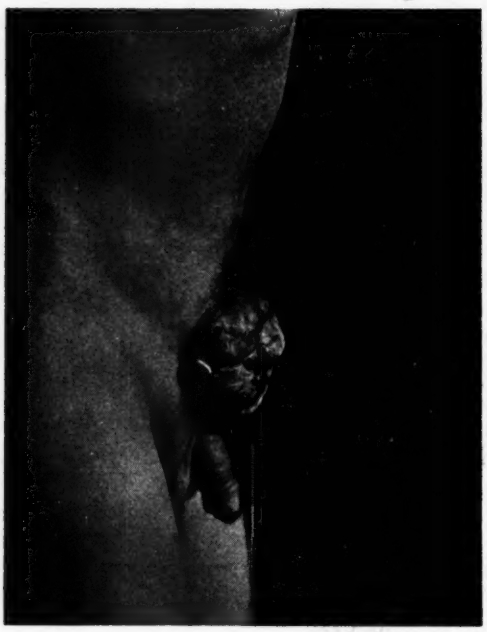
ize the patient were difficult and accompanied by great pain.

X-ray—Chest and abdomen negative. Plates of the spine showed spina bifida occulta of the laminae of the fifth lumbar and first sacral vertebrae. Operation was advised.

On June 29, 1929 suprapubic cystotomy was done. A grape-like mass was felt in the bladder, attached by a broad base to the posterior inferior wall of the bladder. Frozen section showed a rapidly growing round and spindle cell sarcoma. Implantation of radium and diathermy were advised by a consultant.

On July 11, cystotomy was performed. Excision of the tumor and coagulation of the pedicle were carried out. Radium seeds were implanted.

Operative Note. Suprapubic sinus enlarged and bladder exposed. The neoplasm evidently had grown into the sinus, extending upward from the anterior bladder wall, where it surrounded the orifice of the bladder. There was, also, a good deal of growth



on the base of the bladder. The growth was friable and soft, unlike the ordinary consistency of carcinoma. Several small fragments were removed with scissors, and the remaining tissue, which could not be excised, was thoroughly coagulated. Radium was then implanted in various places and the bladder closed around the tube. The pathologic report was consistent with leiomyosarcoma.

Five days after operation the wound opened and the catheter came out. It was re-inserted several times but each time it came out; finally the wound was left open without a catheter. The patient ran an elevated temperature, which finally subsided. He was discharged to his local physician twenty-one days after operation with the diagnosis of recurrent sarcoma of the bladder.

The patient returned six weeks later to the hospital with acute retention.

Interval History. One week after discharge from the hospital, he voided naturally. The suprapubic sinus closed completely. The patient felt fine, his appetite was good and he began to gain weight. This progress continued until three days previous to reentry, when the child lost strength and appetite, and frequency of urination developed. The following day he felt feverish and passed small amounts of urine. His temperature at entrance was 103°, pulse 130, and respirations 25. The bladder was palpable; ten ounces of urine were obtained on catheterization. The day after entrance the suprapubic wound was opened and the patient began draining urine. From that time on he felt fine. He was discharged to his local doctor after five days' hospitalization (9/16/29).

He entered the hospital for the third time October 23, 1929, five weeks later.

Interval History. Since his last admission, the patient had been passing urine through the suprapubic sinus. Until five days previous to this re-entry, he seemed well in all respects.

At that time swelling developed on each side of the incision. It was tender but not inflamed. There was severe pain in the penis accompanied by straining on defecation.

X-ray examination of the chest was negative.

On October 25, 1929, a suprapubic tube was inserted. Ten days later a tumor of the bladder ulcerated through the abdominal wall and was excised by Dr. J. D. Barney. The pathologist stated its appearance was the same as previously reported. Patient was discharged on November 8, 1929.

He entered the hospital for the fourth time on December 26, 1929.

Interval History. Patient did well for quite a while after leaving the hospital; he ate well and was able to walk about and play. Gradually the mass in the lower abdominal wall became larger. In the last few weeks his appetite had decreased and he had become progressively weaker and was now no longer able to walk about and play.

P. E. A raw, soft, friable, lobulated mass, about the size of a lemon, protruding through the old lower abdominal incision.

Blood examination: RBC 3,490,000, WBC 15,900, Hgb. 55%.

X-ray examination—Chest (1/19/30) negative; long bones negative.

Operation (1/6/30)—Bilateral ureterostomy by Dr. J. D. Barney. Cauterization of bladder tumor. Pathologic report: same appearance found as on previous examinations.

Intravenous pyelogram (3/21/30)—"Right kidney pelvis well filled. It is large but otherwise normal in appearance. The ureter also seems large and the

shadow disappears in the flank. On the opposite side there is no evidence of the dye. Kidney is not secreting."

Patient discharged April 1, 1930, with the right catheter draining; the left not draining so well.

Fifth entry May 9, 1930.

Interval History. Since leaving the hospital, the patient had not improved very much. Five days ago all his previous symptoms increased. His ureteral catheter on the right had been irrigated daily with boric. His pain had been controlled by three-fourths to one grain of codein every hour. The tumor, protruding through the abdomen, was still present. Nevertheless his appetite had been spasmodically good and he had been able to be about. He had had a vomiting spell every day for the last four days and for the last three days pain in the knee had been complained of.

P. E. Large, reddish mass, about the size of a small grapefruit, protruding from suprapubic incision. Left ureterostomy sinus draining pus.

On May 5, 1930 excision and coagulation of the sarcoma were performed. The pathologic report was the same as before.

On June 12, 1930 he was discharged.

He died on August 1, 1930.

REFERENCES

1 Albarran, J.: Les tumeurs de la vessie. Paris: G. Steinheil, 1891.
2 Concetti, L.: Biologie et pathogénie du muguet. Arch. de méd. d. enf. 3:449-479, 1900.
3 Munwes, C.: Zur Statistik und Kasuistik der Blasensarkome. Ztschr. f. Urol. 4:837-859, 1910.
4 Judd, E. S.: Results in the treatment of tumors of the urinary bladder. J. A. M. A. 59:1788-1792, 1912.
5 Watson, F. S.: The operative treatment of tumors of the bladder. Ann. Surg. 42:805-830, 1905.
6 Robitshek, E. C.: Primary tumors of bladder in children. St. Paul M. J. 16:580-587, 1914.
7 O'Neil, R. F.: Bladder tumors in the young. Tr. Am. Urol. A. 9:1-13, 1915.
8 Mixter, C. J.: Sarcoma of bladder in a child. Ann. Surg. 65:628, 1917.
9 Deming, C. L.: Primary bladder tumors in the first decade of life. Surg. Gynec. and Obst. 39:432, 1924.
10 Buerger, L.: Tumors of the bladder. New York M. J. 114: 841-843, 1916.
11 Geraghty, J. T.: The results of treatment of bladder tumors. J. A. M. A. 69:1336, Oct. 1917.
12 Barringer, B. S.: Colloid adenocarcinoma of the bladder. Surg. Gynec. and Obst. 30:86, 1920.
13 Lenormant, C.: Epithelio-sarcome de la vessie. J. d'urol. 14:273, Oct. 1922.
14 Scholl, A. J., Jr.: Histology and mortality in cases of tumor of the bladder. Surg. Gynec. and Obst. 34:189, Feb. 1922.
15 Young, H. H. and Scott, W. W.: Results obtained by various methods in the treatment of tumors of the bladder. New York Med. J. & Rec. 118, 262-268, 1923.
16 Thompson, H.: Tumors of the Bladder. 1884. Blakiston.
17 Cecil, H. L.: Sarcoma of the Bladder. Report of a case upon whom a total cystectomy was done. J. Urol. 16, 471-495, 1926.
18 Weiss, A. G. and Dreyfus: Sarcoma in an infant. Rev. franc. de pediat. 4:801-803, Dec. 1928.
19 Stepita, C. T.: Two cases of sarcoma of bladder. Am. J. Surg. 5:406-407, Oct. 1928.
20 Helmholz, H. F. and Amberg, S.: Diseases of the genitourinary system in infancy and childhood. Clinical Pediatrics. N. Y.: Appleton, 1930. Vol. 19, p. 208.
21 Descalopoulous: Myxoma in a child. Arch. d. mal. d. reins 4:270-275, Oct. 1929.
22 Gardner, J. A.: Operative treatment of tumors of the bladder. Ann. Surg. 62:456, 1915.
23 Klein, Adolph: Polyposes Sarcom der Blase bei einem zehnjahrigen Knaben. Sectio alta. Exstirpation. Heilung. Wein. Med. Woch. 45, 1187-89; 1232-134, 1895.
24 Montenegro, A.: Malignant tumor of bladder in a child three years of age. Semena med. 1:241, Jan. 23, 1930; also, Rev. de especialid. 4:1085, Sept. 1929.
25 Cirillo, G.: A propos d'un sarcome primitif de la vessie. J. d'urol. 18:401-404, Nov. 1924.
26 Marogna, P.: Primary lymphosarcoma. Arch. ital. di urol. 4:3-26, Oct. 1927.
27 Grynfeltt, E.: Myxome vesical a evolution rapidement fatale chez un enfant de neuf mois. Bull. de l'Assoc. franc. p. l'etude du cancer 18:488-505, July 1929.
28 Bottari, T.: Sarcoma of bladder. Policlinico (sez. chir.) 32:601-616, Dec. 1925.

RESULTS OF THE USE OF STRAMONIUM DATURA IN PARKINSON'S DISEASE AND POSTENCEPHALITIC PARKINSONISM*

BY O. J. MENARD, M.D.,† AND L. M. HURXTHAL, M.D.†

THE beneficial and oftentimes striking effect obtained by administering large doses of Stramonium Datura to patients with Parkinson's disease (Paralysis Agitans) or postencephalitic Parkinsonism has been reported by several authors[1, 2, 3, 4, 5]. Juster[1] was the first to use and recommend large doses. In this country Shapiro[2] first reported beneficial results following Juster's method. Since then others have been able to confirm their reports. This article is based on the results of twenty-three such cases treated in the Lahey Clinic since November 1929.

Derivatives of hyoscin, notably hyoscin hydrobromide, have been used in the treatment of these disorders. The benefit derived from the latter preparation is in most instances meagre in comparison with that resulting from the use of stramonium. Recently Stemplinger[6] has reported excellent results in the treatment of postencephalitic Parkinsonism by the use of Atropine Sulphate. He begins treatment by administering one drop of a five-tenths per cent. (0.5%) solution three times a day and increasing the dose by one drop each day until the patient is receiving twenty-one drops per day. He states that if there is no improvement the diagnosis of postencephalitic Parkinsonism is not warranted. To date we have given this method a thorough trial in only one case. (No. I.) The patient in this case found it necessary to discontinue the drug after four days because of visual disturbances.

Late sequelae of encephalitic lethargica or advanced states of Parkinson's disease are frequently distressing and not a few are unable to care for themselves or are bedridden. We have had a few such patients who, through the administration of stramonium, have been transformed from mentally retarded, drooling and bedridden patients totally incapable of self-care, to active, alert and independent individuals. Other individuals less severely stricken may hope for variable degrees of improvement.

The differentiation of the so-called true Parkinson's disease or paralysis agitans and the

*From the Medical Department of the Lahey Clinic, Boston, Massachusetts.

†Menard—Assistant in Medicine, Lahey Clinic. Hurxthal—Physician, Lahey Clinic. For records and addresses of authors see "This Week's Issue", page 778.

sequelae of encephalitic lethargica is at times difficult. It has been said that the former receives little benefit from stramonium, whereas the latter are markedly benefited. In general, this would appear to be true, but we suspect that this differentiation cannot always be made and, therefore, treatment should be tried on all such cases. A few of our patients, in whom the diagnosis of true Parkinson's disease seemed likely, were markedly benefited.

DOSAGE

We have used only the powdered leaves, at first in capsules, then later in pill form. Our experience has led us to believe that no worthwhile results can be obtained in using less than five to seven grains per day. At first 2½ grains are administered three times a day; later this may be raised or lowered as seems necessary. It is wise, however, to push the drug to the maximum before giving it up as unsatisfactory. A few of our patients are taking fifteen grains a day; one is taking twenty-two and one-half grains daily. At first most patients complain of dryness of the mouth and disturbance of vision due to dilatation of the pupils; after a time this may wear off if the drug is continued. In some cases the excessive dryness may be very disagreeable and may eventually suppress the appetite. In our experience this seems to be the most unpleasant effect of the drug. The use of citrous fruits or candy helps temporarily to offset this disadvantage. Several trials may be necessary to regulate the dose to the patient's optimal advantage. We have noted no harmful effects from the drug.

RESULTS OF TREATMENT

1. Muscular Rigidity. Relief from this almost constant feature has been the most constant result of treatment.

2. Mental Retardation. Relief of this is often striking and may be expected in many cases.

3. Tremor. The "pill roll" type of tremor may be lessened or in a few it may almost vanish, but on the whole in those cases which might traditionally be classed as Parkinson's disease, results are often disappointing.

4. Excessive Salivation. This unpleasant symptom is invariably relieved as would be expected by the action of the drug.

5. Miscellaneous. Other signs or symptoms are less benefited. The masked facies and stare are rarely changed, although there may be a distinct change in countenance, conveying a more optimistic state of mind. Oculogyria may be lessened. General improvement in health, as shown by gain in weight and appetite, may follow.

6. Many cases of late Parkinson's disease show various degrees of upper dorsal roundback. We feel it may be worth while to prescribe stramonium in early cases, hoping that muscular rigidity may be lessened and thereby, that we may retard the onset of this disfiguring change.

Case reports giving the pertinent data are listed below. All of these patients have been heard from; those living near by have been seen repeatedly. Periods of observation have extended from two to eighteen months. Six of the twenty-three patients experienced marked improvement; six, moderate improvement; while six received slight benefit. Four obtained no help by taking the drug.

CASE REPORTS

CASE I — No. 13301—female—age 29. Indefinite onset eighteen months ago. Complaints: inability to keep eyes open; drooling; tremor (jerking) of left arm, present during sleep.
Examination: Drooping eyelids, continuous jerky tremor of left arm, masked facies, excessive salivation.
Treatment: Stramonium, 22½ grains daily.*
Results: No tremor, drooling stopped, less trouble with eyelids, cheerful and optimistic.
Time followed: 16+ months.

CASE II — No. 6931—female, age 30. Onset twenty-four months ago following influenza.
Complaints: Unable to dress or feed self; drooling; inability to concentrate; nervousness.
Examination: Typical masked facies, excessive salivation, marked rigidity.
Treatment: Stramonium, 12½ grains daily.
Results: Takes care of herself, rigidity and salivation markedly improved, can read and sew, still has masked facies.
Time followed: 14+ months.

CASE III — No. 6383—female, age 51. Encephalitis lethargica four years ago.
Complaints: Shaking of jaw, left arm and leg, mental retardation and drooling of saliva.
Examination: Rigidity, masked facies, continuous coarse tremor of jaw, arm and leg, "pill-roll" type.
Treatment: Stramonium, 15 grains daily.
Results: Tremor of hand lessened by about one-half. Mental activity normal, drooling has ceased, rigidity gone.
Time followed: 8+ months.

CASE IV — No. 2852—female, age 23. Encephalitis lethargica seven years ago.
Complaints: Mental sluggishness, occasional tremor of hands, rigidity of right arm, pulling up of eyeballs causing pain and requiring narcotics.

*The amounts here recorded are those which were found to be optimum.

Examination: Masked facies, mentally sluggish, rigidity of right arm, typical gait.
Treatment: Stramonium, 15 grains daily.
Results: Fewer attacks of oculogyria, less rigidity, "50% better".
Time followed: 3 months.

CASE V — No. 8547—male, age 22. Onset four years ago following encephalitis lethargica.
Complaints: Fatigue, headaches.
Examination: Masked facies, general rigidity, typical gait.
Treatment: Stramonium, 7½ grains daily.
Results: Now working, walks freer, much less rigidity, smiles easily, no headaches. Stopped the medicine for a while but returned to it voluntarily.
Time followed: 1 month.

CASE VI — No. 14730—female, age 35. Indefinite onset ten years ago.
Complaints: Nervousness, vague pains, crying spells.
Examination: Typical masked facies, rigidity, mental sluggishness, "pill-roll" tremor.
Treatment: Stramonium, 7½ grains daily.
Results: Tremor gone, practically no rigidity, more alert and active. Recently developed diarrhea; dose reduced to 5 grains daily.
Time followed: 10 months.

CASE VII — No. 15422—male, age 34. Onset five years following encephalitis lethargica.
Complaints: Nervousness, weakness, cramps, mental depression, unable to write.
Examination: Typical Parkinsonism, masked facies, muscular rigidity, tremor of the left arm—"pill-roll" type, typical gait.
Treatment—Stramonium, 7½ grains daily.
Results: Mentally brighter, less rigidity, much more active and cheerful, could write.
Time followed: 2 months. Could not trace thereafter.

CASE VIII — No. 13212—male, age 46. Encephalitis two years ago.
Complaints—Numbness, weakness, slow mentally.
Examination—Typical masked facies, rigidity.
Treatment—7½ grains daily of Stramonium.
Results: Received some improvement at first. Unable to locate after 2 months.

CASE IX — No. 12550—female, age 41. Onset one year ago following encephalitis lethargica.
Complaint—Tremor of leg.
Examination: Masked facies, continuous shaking of right leg.
Results: No help with 7½ grains of Stramonium daily. (Mail report.)

CASE X — No. 13180—female, age 21. Onset seven years ago with weakness of legs.
Complaints: Unable to use right arm, left arm and left leg—unable to care for self.
Examination: Masked facies, marked stare, excessive drooling, marked rigidity of all extremities, marked mental sluggishness.
Treatment: Stramonium, 15 grains daily, for 7 months; now 22½ grains daily.
Results: Excellent—relief of rigidity, can care for self, has free motion of whole body.
Time followed: 18 months.

CASE XI — No. 16884—female, age 53. Onset indefinite.
Complaint: Arthritis.
Examination: Marked atrophic arthritis, masked facies, typical Parkinson's gait, muscular rigidity, marked arteriosclerosis.
Treatment: Stramonium, 7½ grains daily.
Results: None.
Time followed: 2 weeks.

CASE XII — No. 17591—male, age 52. Onset three years ago following encephalitis lethargica.
Complaints: Fatigue, awkward gait, tendency to sleep most of the time.
Examination: Marked facies, slow cerebration, coarse tremor of the tongue and hands.
Treatment: Stramonium, 7½ grains daily.
Results: More interested, much less tremor, walks better, does not sleep during the day.
Time followed—3 months.

CASE XIII — No. 15706—male, age 64. Onset—indefinite one year ago.
Complaints: Loss of strength and energy.
Examination: Masked facies, monotonous speech, drooling, stammering, coarse tremor of hands.
Treatment: Stramonium, 7½ grains daily.
Results: Salivation stopped; otherwise no change.
Time followed: 1 month. No answer to follow-up letter.

CASE XIV — No. 5327—male, age 53. Onset two years ago. (Influenza 1918.)
Complaint: Mentally slowed up.
Examination: Masked facies, stare, rigidity, typical gait.
Treatment: Stramonium, 7½ grains daily.
Results: Marked relaxation and relief of mental sluggishness. Walks freer.
Time followed: 6 months.

CASE XV — No. 16557—female, age 54. Onset four years ago — ? of encephalitis lethargica.
Complaints: Nervousness, tremor, drooling.
Examination: Typical masked facies, mental retardation, coarse pill-roll tremor of both hands, drooling saliva, marked general rigidity.
Treatment: Stramonium, 17½ grains daily.

Results: Salivation stopped, rigidity markedly less with freer movements, tremor reduced, mentally alert, does her own cooking for the first time in five years.
Time followed: 7 months.

CASE XVI No. 19040—female, age 50. Onset indefinite—about 2 years before.
Complaint: Trembling right arm.
Examination: Pill-roll motion of right arm. Slight rigidity.
Treatment: Stramonium, 7½ grains daily.
Results: Not traced.

CASE XVII No. 17836—male, age 56. Onset 6 years ago with pill-roll tremor of hands.
Complaints: Muscular spasm with severe pain—unable to feed or clothe self—cannot read any length of time, irritability.
Examination: Typical advanced paralysis agitans.
Treatment: Stramonium 12½ grains daily.
Result: Now care for self, reads, goes out walking, marked relief of rigidity and no pain; tremor or facial expression unchanged.
Time followed: 8 months.

CASE XVIII No. 18273—male, age 60. Onset three years ago.
Complaint: Tremor of hands.
Examination: Typical pill-roll tremor of both hands, masked facies.
Treatment: Stramonium, 7½ grains daily.
Results: All symptoms lessened.
Time followed: 5 months.

CASE XIX No. 15206—female, age 70. Onset eight years ago.
Complaints: Tremor, weakness, difficulty in walking.
Examination: Typical Parkinson's disease, masked facies, bilateral pill-roll tremor, flexed attitude.
Treatment: Stramonium, 7½ grains daily.
Result: Legs improved, no effect on tremor, more relaxation; stopped it but resumed it again.
Time followed: 10 months.

CASE XX No. 11689—physician, male, age 70. Onset 3 years ago.
Complaints: Cramps right leg—difficulty in starting locomotion except for measured step; unable to write.
Examination: Masked facies, monotonous speech, rigidity.
Treatment: Stramonium, 15 grains daily.
Results: Much better for 24 hours, then no further effect; probably a typical Parkinsonian syndrome.
Time followed: 2 weeks.

CASE XXI No. 15764—female, age 59. Onset 5 years before ? acute encephalitis.
Examination: Shaking of right arm with pill-roll tremor.
Complaint: Unable to write on blackboard or feed self with right arm; slight rigidity.
Treatment: Stramonium, 7½ grains daily.
Results: Although tremor not entirely gone, can use arm freely.
Time followed: 5 months.

CASE XXII No. 22068—female, age 24. Onset 1 year ago.
Complaints: Emotional outbursts, drooling, mental retardation, tremor of hands.
Examination: Masked facies, drooling, tremor of hands—pill-roll type, mentally slow.
Treatment: Stramonium, 7½ grains daily.
Results: Completely changed. No clinical suggestion of disease. Feels fine.
Time followed: 2 months.

CONCLUSION

Stramonium Datura in adequate dosage is a helpful drug in attempting to alleviate some of the distressing symptoms of either Parkinson's disease or postencephalitic Parkinsonism. It should be tried in all such cases.

REFERENCES

1 Juster, M. E.: Traitement de la rigidité parkinsonienne par la stramoine. Rev. neurol. 1: 218, 1925.
2 Shapiro, S.: Treatment of Parkinsonian states by Juster's method. J. Nerv. & Ment. Dis. 68: 488 (Nov.) 1928.
3 Carmichael, E. A., and Green, F. H. K.: Parkinsonian rigidity. Quart. J. Med. 22: 51 (Oct.) 1928.
4 Jacobson, A. L., and Epplen, Frederick: Stramonium as a therapeutic agent in sequelae of epidemic encephalitis. J. A. M. A. 93: 2027 (Dec. 28) 1929.
5 Moren, J. J.: Value of stramonium in Parkinson's syndrome. Kentucky M. J. 27: 291 (July) 1929.
6 Stemplinger, F.: Therapy of post-encephalitic Parkinsonism. München. med. Wchnschr. 77: 1926 (Nov. 7) 1930.

MEDICAL PROGRESS

PROGRESS IN LARYNGOLOGY

BY LEROY A. SCHALL, M.D.*

EVERY reviewer of medical literature must sympathize with the mood that prompted Smyth[1] to write:

"The volume of literature on the sinuses during the past year is, as usual, abundant and also, as usual, contains little that is new. There may be some excuse for men in the small towns in remote sections of the country writing papers containing well-known facts, but there can be no excuse for well-known otolaryngologists, looked up to by the medical profession, continuing to write year after year, papers that contain nothing that cannot be found in the most dust-covered textbooks on otolaryngology on the library shelves. The natural inference is that these men have told all that they know, but wish to continue to write."

The otolaryngologic literature of 1930 suffered no diminution in quantity from that of 1929.

ANATOMY

In a splendid paper, Dorrance[2] discusses the embryology of the pharyngeal bursa and finds that a true bursa pharyngea in adults is an independent structure and that it is not to be regarded simply as a median recess of the pharyngeal tonsil. He disagrees with those who believe it develops from Seessel's pocket, or from Rathke's pouch. Dorrance finds that it takes its origin from adhesions of the notochord, and that its production may be aided in the general process of growth by the traction of fibrous bands, by the fascia pharyngobasilaris, or by both, as well as by active growth of the entoderm.

Lewis and Dandy[3] failed to find evidence to support the theory that a variable nerve supply conducts the sensations of taste, as first advanced by Krause and more recently sponsored by Harris, who accepted Nageotte's anatomic demonstration that the fifth, seventh and ninth nerves have a common gustatory nucleus in the pons. Their observations indicate that but one nerve conducts sensations of taste from the anterior two-thirds of the tongue. This is the nervus intermedius (Wrisberg) or the glossopalatinus (Hardesty), which represents the sensory portion of the seventh nerve. The course of the pathway of taste is direct. Stimuli pass from the taste buds through the chorda tympani by way of the geniculate ganglion and the nervus intermedius into the pons. These conclusions are based on the results of intracranial division of the isolated cranial nerves in patients. The following are the observations on which the conclusions are drawn: 1. Section of the sensory root of the fifth nerve is not followed by any permanent changes in taste, although in each instance all forms of sensation except taste over the trigeminal domain are totally absent. 2. After intracranial division of the seventh nerve, including the sensory portion (nervus intermedius of Wrisberg, the nervus glossopalatinus of Hardesty), taste to the anterior two-thirds of the tongue is completely and permanently lost. 3. Division of the facial nerve, between the geniculate ganglion and the point at which the chorda tympani leaves the facial nerve to pass through the middle ear, is invariably followed by total and permanent loss of taste. 4. Intracranial division of the glossopharyngeal nerve is followed by complete and permanent loss of taste to the posterior third of the tongue, but there is no effect on taste in the anterior two-thirds of the tongue.

PHYSIOLOGY

The functions of the eustachian tube are described as both physiologic and protective. The physiologic function of equalizing the air pressure is well known. To the protective theory of the wave-like action of the cilia lining the tube, Pitman[4] describes two additional protective functions:

1. The torus tubarius, which is the free margin of the triangular cartilage of the eustachian tube and projects within the nasopharynx, moves backward, upward and inward when the tube is opened. With this movement it sweeps backward and away from the orifice of the tube any secretion surrounding it. In this way it keeps the orifice of the eustachian tube free from secretions.

2. When changing from a vertical slit to a triangular opening, the pharyngeal orifice of the eustachian tube, by its opening movement, breaks up the surface tension of any film of secretion that may be stretched across the orifice. In this way it causes the film of secretion to collapse, and the orifice to the eustachian tube is kept open for ventilation of the middle ear.

According to Shambaugh[5] a definite basement membrane beneath the epithelium may be found anywhere in the respiratory tract. While it may be seen in normal appearing mucous membrane, it is probable evidence of a chronic epithelial irritation in the past. It usually oc-

*Schall—Associate Surgeon, Massachusetts Eye and Ear Infirmary and Massachusetts General Hospital. For record and address of author see "This Week's Issue", page 778.

curs beneath pseudo-stratified columnar ciliated epithelium, but may occur with the transitional form and occasionally with stratified squamous epithelium. It is composed of a dense, more or less homogeneous layer of collagen beneath the epithelium and is interspersed with canaliculi, through which leukocytes migrate to the surface and tissue fluids escape. It is found in about a third of the specimens from chronic inflammations, and in about two-thirds of the specimens from asthmatic patients. When greatly thickened, it is accompanied by a desquamating epithelium, often producing mucus excessively. This suggests that the presence of a basement membrane results from stimulation of connective tissue cells by abnormally active epithelium. Since edema, fibrosis and cellular infiltration of the lamina propria are not more marked when there is a thickened basement membrane, it has no clinical or pathologic significance other than being an evidence of chronic epithelial irritation, past or present.

BACTERIOLOGY

The etiology of the common cold was studied experimentally by Shibley et al[6], who arrived at certain definite conclusions:

"The contagious cold in human beings is caused by an invisible uncultivable, filtrable agent which, in all likelihood, belongs to the group of so-called submicroscopic viruses. Colds can be transmitted successfully from man to the chimpanzee and from man to man by means of Berkefeld filtrates of nasal washings obtained from individuals suffering from spontaneous colds, more especially during the period of rising incidence of infection in the community.

"In the various complications that may be due to an acute throat infection, *Streptococcus hemolyticus* was found in two-thirds of the cases."

PATHOLOGY

Stimulated perhaps, by the emphasis placed on pathology by the American Board of Otolaryngology, more articles on laryngologic pathology have appeared in the past year than in any previous decade.

Eggston[8] writes on the pathology of chronic accessory sinus disease. In brief, his article consisted of an attempt, founded on the study of surgical specimens, to explain the pathologic processes involved in the production of chronic accessory sinus disease, based on the vascular changes of the tissues involved; these vascular changes resulted in three types of pathologic changes. 1. The hypertrophic or polypoid type of sinusitis results from phlebitis and lymphangitis, with an inflammation of the adjacent perivascular stroma. An obstruction of the proper drainage of the parts results in a turgescence and polypoid formation. 2. The fibrotic or atrophic types are due to a fibrosis secondary to arteriole inflammatory involvement and a loss of the blood supply and nourishment to the tissues, with replacement fibrosis. 3. In the third type a mixture of hypertrophy and atrophy exists in the same sinus, resulting in rugae or sulci, producing the so-called papillary type of membrane. In this instance, there is involvement of the venules, lymphatics and arterioles.

One hundred and sixty specimens of tissue were removed from the noses and accessory sinuses of twenty-six patients having asthma or vasomotor rhinitis, or both, and were examined grossly and microscopically by Weille[9]. The most interesting gross observation was the presence of occasional pus pockets in the sinus membrane.

The microscopic examination of the sections of tissue showed: (a) metaplasia at times of the type of epithelium; (b) possibly metaplasia of individual epithelial cells; (c) thickening of the basement membrane; (d) edema or fibrosis of the tunica propria in two-thirds of the specimens; (e) very active mucous glands; dilated serous glands; (f) increased vascularity; no special smooth muscle hypertrophy; (g) prominence but not predominance of eosinophils as infiltrating cells in tissues of patients with asthma operated on once; (h) regeneration of all tissue elements in patients operated on a second time; (i) marked contrast between "pale" and "red" mucous membranes in vasomotor rhinitis.

Producing anaphylaxis in guinea pigs, Murphy[10] studied the pathologic changes of the nasal mucosa. These changes consisted of an eosinophilia, engorgement and petechial hemorrhages.

Hilding[11] studies the tissue change in the common cold by removing specimens from the inferior turbinate in twenty-five patients. These specimens were removed from several hours to several weeks of the infection.

The pathological process found is that of the mucous membrane inflammation following rather marked tissue changes including the loss of many of the surface cells and a proliferative reaction in the submucosa.

Prompted by the work of Knowlton and McGregor, Gorham and Bacher[12] report their observations of the postoperative healing following the Caldwell-Luc operation.

Specimens of the regenerating lining were removed during postoperative course at two, three and four weeks and at two, three, four, five and ten months and examined microscopically.

From their findings, they agree with Knowlton and McGregor's conclusions that there is a complete new mucous membrane consisting of the pseudo-stratified columnar epithelium, ciliated, with a distinct basement membrane, and a stroma containing mixed glands.

RESULTS OF TONSILLECTOMY

From a comparative study of 2,200 tonsillectomized children, with an equal number of controls, three and ten years after operation, Kaiser[13] finds that:

1. "The real value of the removal of tonsils and adenoids cannot be definitely established in a few years. Apparent benefits during the first few postoperative years are not so evident over a ten-year period. 2. Outstanding benefits are apparent in influencing the incidence of sore throats over a ten-year period. 3. Substantial benefits are apparent in rendering children less susceptible to scarlet fever and diphtheria. 4. Acute head colds and otitis media, though definitely lessened over a three-year period, are not essentially influenced over a ten-year follow-up period. 5. Cervical adenitis is decidedly reduced in tonsillectomized children over a ten-year period. 6. The respiratory infections, such as laryngitis, bronchitis and pneumonia, not only are not benefited but actually occur more frequently in tonsillectomized children. 7. First attacks of rheumatic manifestations occur from 30 to 50 per cent. less often in tonsillectomized children. The greatest reduction occurs in children tonsillectomized early. Recurrent attacks are not benefited at all. 8. Incomplete tonsillectomies do not offer the same protection against the usual throat complaints and infections as complete removal of tonsils. 9. The hazards of tonsillectomy must be considered in evaluating the end-results. Considering this hazard, the late results seen in 2,200 children ten years after operation are evident only in the reduction of sore throat, cervical adenitis, otitis media, scarlet fever, diphtheria and rheumatic fever and heart disease."

Monroe and Volk[14] analyzed the complaints of 736 children before and after operation and compared the results with an analysis of the complaints of 741 children in a control group having similar complaints on examination and reëxamination one year later. The following conclusions are drawn: "Tonsillectomy offers a child considerable relief from such common complaints as sore throat, head colds and mouth breathing. It reduces malnutrition and promotes disappearance of enlarged cervical glands. Complaints have been relieved in 91 per cent. of patients operated on. In order to obtain the maximum benefit, the child should be operated on in early childhood. Children with subnormal mentality and retarded school progress resulting from enlarged tonsils and adenoids showed improvement in 40 per cent. of all patients operated on. In the 736 cases analyzed, coexisting conditions were present in 120. Complaints in the control group of cases do not show any improvement during the period of one year of observation, as compared with 91 per cent. of improvement shown in the group of patients operated on."

According to Cunningham[15], one-third of 12,530 young white women who entered the University of California between 1920 and 1929 had had an operation for the removal of tonsils; one-third were thought to have normal tonsils and the remaining one-third had pathologic tonsils, remnants of tonsils or buried or projecting tonsils, to which no further designation was given. The group with normal tonsils and the group with pathologic tonsils differed by small percentages, which are statistically insignificant, in the incidence of the following diseases and operations reported in the histories; measles, mumps, chicken pox, whooping cough, scarlet fever, diphtheria, pneumonia, pleurisy, chronic colds, rheumatism, chorea, operations for appendicitis, mastoiditis, enlarged cervical lymph nodes and operations on the nose. The group with absent tonsils gave a history of higher incidence of all illnesses and operations than did either the group with normal tonsils or the group with pathologic tonsils. The fact that children who are often ill are the ones most frequently operated on is offered as a possible explanation for this higher incidence of illness. The proportion of the amount of illness reported before and after tonsillectomy suggests that the removal of tonsils had little influence in lessening the susceptibility to most infections. The lack of proper comparative data lessens the value of this conclusion. The age when the tonsils were removed had no influence on the total incidence of measles, mumps, chicken pox, whooping cough, pneumonia and influenza, but early removal seemed to have a slightly favorable influence on the incidence of scarlet fever and, to a less extent, on that of diphtheria. The effect of the age of removal on chronic colds, rheumatism and otitis media was not conclusive. A review of the literature relative to the effect of the condition of the tonsils on general health reveals a great lack of accurate information on the effect of tonsillectomy, when one considers the number of operations that have been performed. There is a growing tendency to question the value of tonsillectomy as a prophylaxis against infectious diseases and as a preventive measure or cure for such systemic diseases as rheumatism, chorea and carditis.

TONSILLECTOMY DURING ACUTE INFECTIONS

Levinger[16] performed tonsillectomies on 235 patients with peritonsillar abscesses. In sixty of the patients the operation was immediately preceded by a tonsillitis. On the basis of his experiences he comes to the conclusion that the opinion now generally held, that tonsillectomy should not be done during or shortly after an attack of acute tonsillar diseases, is no longer tenable, because this expectant attitude does not always prevent complications. The author thinks that complications are usually caused by a too radical operation at the lower pole of the

tonsil. That during his tonsillectomies complications did not develop in spite of the fact that acute inflammations existed, is considered to be the result of his procedure to avoid a complete removal at the lower pole. It is asserted that, provided all the deeper recesses are removed, a tonsillar stump may remain at the lower pole, because even a radical removal does not prevent the after growth of tonsillar tissue. The author stresses that tonsillectomy is not only permissible during the existence of a peritonsillar abscess but is the most favorable form of treatment, especially in cases of recurrent abscesses.

Baum[17] advocates and defends the principle that it is *safe*, not dangerous, to remove tonsils and adenoids during the height of an acute anterior cervical adenitis, and that such treatment is the most satisfactory in its results of any yet advocated for the condition. His paper defends the performance of a surgical procedure which is contrary to preconceived opinion, recognizing the fact that the operation may frequently be done in such cases in as short a time as two weeks, or even ten days from the date of onset of an acute tonsillopharyngitis. This defies a certain prejudice known to exist against early tonsillectomy following an acute tonsillar infection. With this prejudice, as applied to cases in which definite therapeutic benefit promises to accrue, Baum does not agree. He believes that the experience of this series of cases amply supports the view that we should not permit preconceived opinion, based more on theory than on experience, to dissuade us from availing ourselves of whatever therapeutic measures are at hand when those measures seem to be, and eventually prove themselves to be, most valuable in the management of the particular condition with which we are dealing. The problem under consideration fulfills these requirements and for that reason he unhesitatingly recommends tonsillectomy as the treatment of choice in acute anterior cervical adenitis which follows a tonsillopharyngeal infection and fails to show definite signs of subsiding spontaneously within one week.

TONSILLAR RECURRENCES

Leshin and Pearlman[18] call attention to extratonsillar tissues which often contain lymphoid tissue embedded in their layers and which are frequently neglected by many in routine tonsillectomy. Following tonsillectomy in which the main tonsil mass is apparently completely removed, the instances in which the plicae are well developed, sites for possible future lymphoid hypertrophy are still left in nearly 50 per cent. of all cases. Whenever these plicae are well developed, and this applies particularly to the plica-triangularis, they should be removed separately. There is no method of tonsillectomy that insures the patient positively against the future recurrence of lymphoid tissue at the site of operation. This statement is based on histologic evidence of the presence of lymphoid tissue surrounding the immediate tonsillar site and is confirmed from embryologic evidence that indicates that the tunica propria of the mucosa in this entire region contains lymphatic structures with marked tendency toward hypertrophy. Epithelization of the raw operative area occurs as the result of the surrounding mucosa, with its tunica propria, growing down into it and retaining in its new site the ability to form lymphoid structures. The occurrence of hypertrophy in some instances and its absence in others is due to constitutional and individual factors as yet not known.

COMPLICATIONS OF TONSILLECTOMY

Ballenger[19] reports two cases in which appendicitis developed soon after the removal of tonsils. A girl, aged 5, was admitted to the hospital with a history of mouth breathing, frequent colds, sore throats and an occasional earache, with two instances of a supervening acute suppurative otitis media. There was no history of a previous attack of appendicitis, recent cold in the head, or sore throat. The tonsils were large, almost meeting when she opened her mouth. No acute inflammation of the nose or throat was evident. The tonsils were removed. The second day following the operation, the patient suddenly complained of pain in the abdomen. The pain was accompanied by a rise in temperature to 101° F. and a leukocyte count of 18,000. A diagnosis of acute appendicitis was made, which was confirmed by operation. The second patient, aged 5 years, was admitted to the hospital with a history of frequent colds and sore throats, with mouth breathing and snoring most of the time during the past year. Her tonsils and adenoids were large, with no evidence of an acute infection and with no history of a recent cold or sore throat. The tonsils were removed. The day following the tonsillectomy she felt well, but during the night of the following day she complained of pain in the abdomen with nausea. Vomiting and fever accompanied the pain. A diagnosis of acute appendicitis was made. The abdomen was opened and a gangrenous appendix was found with a localized peritonitis.

Shapiro[20] reviews the anatomy of the tonsil in relation to the deep planes of the neck, and collects 29 cases of deep infection complicating tonsillectomy. Ninety-four per cent. of these followed the use of local anesthesia. The infection occurs in two types: (1) the phlegmonous type, which includes the large majority of all cases analyzed, and (2) a vascular infection which manifests itself in the form of septicemia, thrombosis or embolism. The treatment should aim to localize the infection before an attempt is made to drain the abscess.

von Hofe[21] reports three cases of emphysema of the neck and head complicating a tonsillectomy. The emphysema was absorbed spontaneously in from 3 to 5 days.

TONSIL INFECTION

Stroe[22] and collaborators compare their results in fifteen cases of gangrenous tonsillitis in scarlet fever with the observations of many other French writers and conclude with a favorable comment on the use of an antigangrenous serum in those cases. Their experiences for the years 1928-1929 show that the proportion of mortality of cases encountered was over 75 per cent., while in 1930 with the extensive employment of antigangrenous polyvalent serum the mortality fell to from 6 to 13 per cent. The latter figure is for the complicated cases. It is well to remember that in 1930 there was in Roumania a most grave epidemic of scarlet fever.

Allodi[23] reports an unusual case in a farmer, aged 30, who was working with a threshing machine when it suddenly stopped. He came near the machine to see what was wrong, when suddenly the machine began to work again, blowing dusty particles of oats into his mouth. Shortly after the accident the farmer developed an acute attack of supposed diphtheria, which disappeared spontaneously after some days, leaving a chronic tonsillar actinomycosis with diminished ability to work. When the patient was seen four years after the accident, he had infected tonsils (which were removed), chronic pharyngitis and a fistula of long duration behind the right tonsil, which probably developed during the first acute attack. The case is considered under the point of view of industrial diseases which give workmen right to compensation. The author states that in cases of this nature actinomycosis should be considered as any other infection with right to compensation and that, at the evaluation of the injury of the laborer, among late sequelae of tonsillar actinomycosis the formation of abscess of the lung or of gangrene of the lungs, which may cause fatal complications, should be borne in mind.

ANESTHESIA IN PERITONSILLAR ABSCESS

The problem of anesthesia in peritonsillar abscess has been studied by Guttman[24]. As is well known, general anesthesia is exceedingly dangerous, while local anesthesia is practically useless. Guttman advocates the cocainization of the sphenopalatine ganglion to produce anesthesia of the soft palate and tonsillar pillars. This article confirms the work of Gordon Hoople which was published several years ago.

CONGENITAL ATRESIA OF POSTERIOR NARES

Stewart[25] asserts that clinically the term "atresia" (imperforation) is not applied in its strictest sense, but under this term are commonly included those cases of congenital occlusion in which there is a minute perforation sufficient to admit a small probe. One may not, however, include under the title "atresia" any further cases in which the choanae are narrowed or in which there is asymmetry of the posterior nares. There are three degrees of congenital choanal atresia, which are due, respectively, to: (1) persistence of the buccopharyngeal membrane, excessive growth medially of the horizontal and lateral processes of the palate bone and persistence of the nasobuccal membrane; (2) excessive growth medially of the horizontal and lateral processes of the palatal bone and persistence of the nasobuccal membrane; and (3) persistence of the nasobuccal membrane. The obstruction may be bilateral or, more commonly, unilateral, and is absolute. As age advances and when the obstruction is of bone, it tends to become more dense owing to the sclerosis secondary to the inflammatory condition in the obstructed nostril or nostrils. The sense of smell depends on the extent of atrophy of the olfactory nerve endings. In cases of bilateral atresia the sense of smell was perceived a few days after operation. The normal mucus stagnates in the affected nasal cavity or cavities and in time creates a pathologic condition of the lining membrane of the nose and also hypertrophy of the adjacent conchae. Treatment is essentially operative.

FRACTURES INVOLVING THE SINUSES

Shea[26] reviews his experience with fractures of the nasal bones with sinus involvement and concludes that: 1. The rhinologist is best prepared to treat fractures involving the paranasal sinuses. 2. The reduction of the fractures and the protection of the sinuses are the underlying therapeutic principles.

PARASITIC INFECTION

Liggett[27] reports an interesting case of a girl, age 15, with a bilateral sinus infection, and the recovery of the larvae of the black carpet beetle from the sphenoidal-ethmoidal recess.

MAXILLARY SINUSITIS—DIAGNOSIS

Many articles have appeared dealing with the diagnostic aid of iodized oil in sinus disease. Of these articles, one can mention those of Goodyear[28], Jones[29], Dean and Morsman[30] and Richards[31].

Smyth[32] evaluates such aid when he says: "Where rhinologists take and interpret their own roentgenograms, they can evidently do better work with the aid of an opaque oil. In other localities where an expert roentgenologist is used to take the roentgenograms and also to interpret them, the reverse is true. Roentgenologists who are doing sinus work interpret pathologic signs in the sinuses accurately and do

not allow their very exact picture of the pathologic process, as shown by the flat plate, to be confused by the addition of an opaque oil, with consequent possible filling defects. These physicians should be able to tell the exact conditions in a sinus: whether activity is present or not, whether there are thickened linings, polypoid linings, bone necrosis, cysts, etc. Interpretation of x-ray plates is a specialty in itself just as much as rhinology is. A good x-ray plate is infallible. The pathologic process is shown in it and is only waiting for the expert to interpret it properly."

Granger[33] also outlines his radiographic technic of the paranasal sinuses.

MAXILLARY SINUSITIS—TREATMENT

Trotter[34] has treated ten patients with chronic maxillary sinusitis with polypoid degeneration by surgical diathermy through an antroscope. He claims the advantages are: (1) The wound is sterilized; (2) the operation is bloodless; (3) secondary hemorrhages are rare; (4) shock, less; (5) postoperative discomfort negative and (6) convalescence is rapid.

We cannot agree with these conclusions as his operation was through the canine fossa with a counter opening through the nasoantral wall. His operation does not explain how he treats polyposis of the anterior face of the maxillary antrum.

Stevenson[35] reviews the literature of chronic maxillary sinusitis and cites 192 cases that came to operation. His summary is well within the limits of the accepted otolaryngologic practice.

Goldsmith[36] draws from his vast experience and comes to the following conclusions:

1. "The causation of the persistence of most head colds is due to an inflammatory condition within some of the nasal accessory sinuses; that most commonly affected is the maxillary antrum.
2. "Postnasal discharge, or the so-called 'catarrh,' is due to seepage from an oedematous mucosa of an air cell. The most commonly affected is the maxillary antrum.
3. "Irrigation of an antrum may or may not be conclusive. A negative irrigation does not by any means rule out mucosal infection.
4. "Acute antral infection usually gets well of itself. Many patients are, however, assisted greatly in recovery by a few irrigations.
5. "Swelling of the face, or a bulging forward of the cheek bone, is not found in a simple acute or chronic antral infection.
6. "The teeth at the floor of the antrum are frequently responsible for the beginning of one caused by nasal inflammation. The antrum should be left alone by dental surgeons, and no effort made to treat antral empyema through an alveolar opening. Much meddlesome surgery is now becoming fashionable in this area and facial-antral fistulae are of much more frequent occurrence.
7. "A very large proportion of the so-called cases of nasal or postnasal catarrh will be found to have their origin in the antral mucosa.
8. "The antrum may be only a reservoir for the secretion from chronic ethmoidal or frontal sinus disease. When the antrum is infected along with these sinuses, treatment should include the associated cavity as well.
9. "X-ray examination and interpretation of a high order may be very helpful, if taken in conjunction with a knowledge of the clinical symptoms and signs. Taken alone it may be very deceptive. X-ray is a good servant but a poor master.
10. "All varieties of mucosal inflammations may be present in the same antrum at the same time.
11. "Infection of the mucosa of the maxillary antrum is responsible for most of the nasal complaints in my practice.
12. "Some asthmatics, and those with persistent inflammation of the upper respiratory mucosa, derive very striking benefit from radical measures directed to the removal of chronic oedematous changes in the antral mucosa."

Hunt[37] also writes:

1. "Thanks largely to improved x-ray technique and its growing use for diagnostic purposes, it has become recognized that a large percentage of all chronic nasal catarrhs, and many remote systemic diseases, are directly due to chronic sinusitis, the antrum being the largest and most frequently involved.
2. "The nasal, and nasoantral methods of operating for this trouble seldom give permanent relief, and not infrequently they only serve to increase the disability.
3. "The extra-nasal antrum operation, miscalled the 'radical,' is the only one which takes proper cognizance of the true character of the underlying pathological condition of chronic nasal sinusitis, i.e., the chronically infected and permanently thickened mucosa, and, by completely removing the same, offers a safe and sure cure of an otherwise intractable disease."

FRONTAL SINUS

Cullom[38] tells of his experience with 12 cases requiring the Lynch operation. He gives a very good review of the literature and endorses the operation.

Simpson and Sanders[39] report their observations in over 100 cases of frontal ethmoid operations by the external route. In this series of operations they have used morphine and scopolamin analgesia combined with local anesthesia. Their operations differ from that of the Lynch operation, in that the skin incision is ex-

tremely short. They agree that removal of the entire lining mucosa of the frontal sinus is required to obtain the best results. To view the entire sinus cavity they advocate the use of mirrors.

COMPLICATIONS OF FRONTAL SINUSITIS

Skillern and Coates[40] report a case of a woman, aged 20, who presented acute frontal sinusitis and edema of the right eye and the forehead. The anterior end of the middle turbinate was removed. Incision was made above the eye; some pus was found. Her condition gradually grew worse. After three weeks there was a sudden collapse and she was rushed to the hospital in a semicomatose state, and with left-sided hemiplegia. There was a large amount of pus (about 4 ounces) deep in the frontal lobe. The lobe, including the diseased frontal sinus, was evacuated and thoroughly cleansed. The patient was returned to her room and began to show signs of returning consciousness. In a few hours she was again rational. On the next day the hemiplegia had disappeared. The temperature went down and the pulse rate increased. On the following day, there were signs of meningeal irritation, but they were not severe. Recovery was uninterrupted.

Woodward[41] discusses the etiology and pathology of osteomyelitis of the skull. According to the observer the etiology is as follows. The direct cause, or infecting organism, is usually the staphylococcus pyogenes-aureus. The predisposing causes are occlusion of ostium by swelling of the mucous membrane with retention of pus under pressure, and an interference with the blood supply. The *pathology* found is infection, occluded ostium, pus under pressure and eliminated blood supply, areas of necrosis in the mucous membrane and thrombosis of the perforating vein extending through the periosteum.

ROENTGENOGRAMS OF NECK

Pack and Craver[42], in an excellent paper on "Tumors of the Larynx and Thyroid", advise lateral roentgenograms of the neck as a useful supplementary means of studying tumors of the larynx and thyroid.

In the x-ray plate tuberculosis of the larynx gives a hazy, indistinct outline, owing to the invasion of soft parts and the rarefaction of the ossified cartilages. Syphilis of the larynx presents a picture of sharp, distinct ossified areas, owing to increased proliferation of bone.

Lateral roentgenograms reveal the anteroposterior compression, tracheal stenosis and tracheomalacia produced by certain types of goiter and by tumors of the thyroid gland. Carcinoma of the thyroid may perforate the trachea to form an intratracheal tumor, easily visualized on the roentgenogram.

Lateral roentgenograms of the neck exhibit the outlines of retropharyngeal tumors. Some of these growths are inflammatory, whereas others are neoplastic, e.g., neurogenic.

Carcinomas of the base of the tongue, vallecular, epiglottis and aryepiglottic folds distort the lateral silhouettes of these structures to produce a characteristic roentgenogram.

Intrinsic laryngeal cancers obliterate the light oval areas on the roentgenogram which represent the ventricles of Morgagni.

The peculiar punched-out appearance of the thyroid cartilage as seen in the roentgenogram is almost specific for laryngeal cancer.

Pancoast[43] also writes that:

"The portion of the upper respiratory tract in the neck has been a neglected field for roentgenologic study. Practically all of the pathologic conditions presented by the larynx and neuromuscular disturbances show some recognizable phenomena or abnormal appearances, many of which are characteristic. The examination must be both fluoroscopic, for studying moving parts, and roentgenographic, for purposes of record and finer details. The study of phonation and the swallowing act is essential in all cases." Both of these functions are described.

LARYNGEAL OBSTRUCTION

Richards[44] discusses the types of acute laryngeal obstruction. He strongly urges a direct laryngoscopic examination to determine the cause, for the cause determines the treatment.

CHRONIC HOARSENESS

Tucker[45] reports an interesting case of a woman 57 years of age who was hoarse for six weeks. Biopsy revealed both tuberculosis and cancer in the same lesion.

LARYNGEAL TUBERCULOSIS

Schugt[46] describes his observations on patients with tuberculosis of the larynx who were treated according to Leichsenring's method. In order to secure rest for the diseased larynx, the recurrent nerve is temporarily paralyzed. The exclusion of the nerve is done either by injection of alcohol, as advised by Leichsenring, or by surgical intervention. The author employed the first procedure, because it is simpler and less dangerous than surgical division. He uses an 85 per cent. alcohol solution to which several drops of a 1 per cent. solution of procaine hydrochloride are added. The injection needle is from 8 to 10 cm. long. The point of puncture between the cricoid cartilage and the first tracheal ring is marked on the skin. The needle is pushed through up to the spinal column; then it is retracted from 1 to 1.5 cm. and the alcohol is injected. The author employed this treatment in 25 cases. In some instances the paralysis developed immediately; in others the injec-

tion had to be repeated. Because the vocal folds frequently remain in the median position following the exclusion of the nerve, a bilateral paralysis is not advisable on account of the danger of suffocation and because of a possible disturbance of the mechanism of coughing. In case of unilateral paralysis, these dangers are avoided. The rest that is secured for the diseased larynx by the exclusion of the nerve is more complete and more effective than refraining from speaking. The average duration of an effective paralysis is from four to eight weeks. A factor that speaks against the surgical exclusion of the nerve is that sometimes the vocal folds do not return to the normal function. Occasionally this occurs also in case of alcohol injection. The author thinks that this might be avoided by using a weaker solution of alcohol. If the paralysis is only unilateral, the patient's voice is not impaired, even if on the one side the nerve is not restored to the normal function, because the other vocal fold becomes adapted. In fifteen of the twenty-five patients treated with this method, the observations are complete. Nine of the patients recovered, three showed no improvement, in two the disease progressed, and information could not be obtained about one case. The other ten patients are still under observation. On the basis of his experience the author concludes that Leichsenring's method for exclusion of the nerve can yet be improved. He asserts that it is not dangerous and gives good results. Therefore he recommends its application.

Heaf[47] states that all patients with tuberculous laryngitis, except those that are hopeless, should be advised to try to keep silent, and they should be provided with a pencil and a notebook to write down all their conversation. Whispering is not recommended, as it causes considerable laryngeal movement. It is best to instruct the patient to keep absolute silence, and then allow him to use his voice normally for one hour each day, increasing the period by hourly increments every three or four days if the larynx remains quiescent. It is also particularly desirable that useless coughing should be checked as much as possible during treatment. The advice to keep silent is difficult to follow, and it is rare to find a patient who is conscientious in this direction, particularly among the poorer classes. It is, therefore, necessary to assist the patient with further treatments. These may be classified under the following headings: local applications (respirators, insufflations, painting with caustics), cauterization, heliotherapy, external applications (blisters), injection of superior laryngeal nerve, and surgical methods. It must be remembered, however, that silence and the galvanocautery are the two most important and effective methods of treatment.

CANCER OF BUCCAL MUCOSA

The results of treatment of carcinoma of the mouth by surgery and irradiation are compared by Simmons[48]. In primary cases without clinical evidence of metastases, surgical treatment offers 40 per cent. chance of a five-year cure as against 8.5 per cent. by irradiation. In primary cases with clinical evidence of metastases, irradiation offers no chance of permanent cure, and operative treatment 30 per cent. These figures are hardly fair, however, as only the most favorable cases were submitted to surgical treatment. On the other hand, no cases were cured by irradiation. Postoperative prophylactic roentgen treatment had no effect in preventing recurrence. Of the primary cases fatal because of recurrence, life was prolonged by treatment, but life is longer following surgical treatment than irradiation. In the recurrent cases in which death occurs because of disease and in inoperable cases, life is distinctly prolonged by irradiation.

BRONCHIAL CARCINOMA

Concerning the clinical manifestations of primary bronchial carcinoma Funk[49] writes:

"No set description can be given, since the clinical picture varies greatly, depending on the following factors: (1.) the location of the neoplasm and the rapidity of its growth; (2.) the degree of bronchial obstruction produced; (3.) the presence of secondary infection and suppuration; (4.) the pressure on adjacent structures; (5.) the occurrence of pleural involvement, which is not infrequently associated with effusion; and, (6.) the influence of local and general metastases. These factors in varying combinations produce many dissimilar clinical pictures, which may closely resemble other common and rare diseases of the respiratory tract.

Among twenty patients coming to autopsy, death occurred within one year from the onset of the symptoms in eleven instances, and within one and a half years in all except three instances. Among some of the patients, and especially among those given roentgen therapy, the duration has been much longer, one patient remaining well after six years. This patient is an exception to the generally fatal outcome within a relatively short period of time.

It is to be hoped, since early diagnosis has now become possible through the aid of the bronchoscopist and the pathologist, that the advances in thoracic surgery or the development of a more satisfactory cancer therapy may render prognosis less unfavorable than it is at present."

Menne[50] and his associates present a study of sixteen instances of primary bronchogenic carcinoma with a correlation of the pathologic and clinical observations. They divide primary bronchogenic carcinomas into two distinctive

groups, the hilar nodular and the diffuse necrotic. Further pathologic classification is superfluous and unnecessary. It is pointed out that the cell type does not offer an exact means of differentiating the various forms of primary bronchogenic carcinoma. The initial site of primary bronchogenic carcinoma may be found in any part of the bronchial lining or the submucous glands but is most frequent in the primary and secondary bronchi. Primary bronchogenic carcinoma probably never arises from the atrial lining cells. The symptomatology, physical signs and roentgen observations can all be explained on the basis of the pathologic changes. In the author's opinion there is a definite increase in the incidence of primary bronchogenic carcinoma.

Fremont-Smith and collaborators[51] collect 18 cases of primary carcinoma of the lungs, studied postmortem. They analyze the physical signs, roentgen ray interpretation, findings in the hospital and the anatomical findings. Their discussion of the diagnosis is conspicuous by its failure to mention the only positive early diagnostic procedure—namely—bronchoscopy.

Meyersburg[52] reports a traumatic perforation due to a particle of glass, with the development of mediastinitis. Esophagoscopy revealed a deep abrasion of the mouth of the esophagus at the level of the cricopharyngitis; forceps carried through the abrasion released pus. An external esophagotomy was done and the patient recovered.

CARDIOSPASM—OPERATION—RECOVERY

Häggström[53] relates two cases of cardiospasm in which esophagogastrostomy brought about good results. The first case was that of a girl, aged 20, who at the age of 13 had been taken ill with diphtheria and who on the third day of illness developed difficulties in swallowing, symptoms that had subsequently persisted. A subdiaphragmatic esophagogastrostomy was performed. During the following twelve months the patient increased in weight by 15 Kg. and had no difficulty with swallowing; she could eat anything. Roentgen examination nine and fourteen days after the operation showed some retention of the opaque meal in the esophagus, but examination four years after the operation showed that the passage through the lower part of the esophagus and the cardia was about as wide as a lead pencil and had an "S"-shaped course through the diaphragmatic vault. The esophagus was not dilated above the cardia. There was no retention of the meal taken. This case is of particular interest because it is the only case in which the dysphagia has appeared in direct connection with an attack of diphtheria. The second case was that of a man, aged 30, who since childhood had had difficulty in getting food down the gullet. His difficulties had gradually become worse despite prolonged treatment by sound. Subdiaphragmatic esophagogastrostomy was performed and since then the patient has been free from difficulties in swallowing. Roentgen examination also shows the food passing down the stomach without difficulty. Yet in this case the prognosis must be considered fairly serious because of the advanced stage of the patient's pulmonary tuberculosis.

REFERENCES

1 Smyth, D. C.: Paranasal cavities; review of literature. Arch. Otolaryng. 12:89, July 1930.

2 Dorrance, G. M.: So-called bursa pharyngea in man. Arch. Otolaryng. 13:87, Feb. 1931.

3 Lewis, D. and Dandy, W. E.: Course of nerve fibers transmitting sensation of taste. Arch. Surg. 21:249-288, Aug. 1930.

4 Pitman, L. K.: Functions of the Eustachian tube. Arch. Otolaryng. 13:676, May 1931.

5 Shambaugh, G. E., Jr.: Basement membrane in mucosa of upper respiratory passages. Arch. Otolaryng. 13:556, Apr. 1931.

6 Shibley, G. S., Mills, K. C. and Docheg, A. R.: Studies of the etiology of the common cold. J. A. M. A. 95:1553, Nov. 22, 1930.

7 Ballenger, H. C., Rubin, M. I. and Werner, M.: Bacteremia and acute throat infections. J. A. M. A. 95:1828, Dec. 13, 1930.

8 Eggston, A. A.: The pathology of chronic accessory sinus disease. Arch. Otolaryng. 12:561, Nov. 1930.

9 Weille, F. L.: The pathology of allergic tissue in the nose and accessory sinuses. Arch. Otolaryng. 12:785, Dec. 1930.

10 Murphy, W. E.: Anaphylactic changes in the nasal mucosa of guinea pigs. Arch. Otolaryng. 13:842, June 1931.

11 Hilding, A.: The common cold. Arch. Otolaryng. 12:133, Aug. 1930.

12 Gorham, C. B. and Bacher, J. A.: Regeneration of the human maxillary antral lining. Arch. Otolaryng. 11:763, June 1930.

13 Kaiser, A. D.: Results of tonsillectomy. J. A. M. A. 95: 837, Sept. 20, 1930.

14 Monroe, J. D. and Volk, V. K.: Effects of 736 tonsillectomies and 741 controls. Am. J. Pub. Health 20:469, May 1930.

15 Cunningham, R. L.: Normal, absent and pathologic tonsils in young women. Arch. Int. Med. 47:513, Apr. 1931.

16 Levinger, S.: Should tonsillectomy be performed during and shortly after an attack of tonsillitis. Münch. med. Wchnschr. 77:1666, Sept. 26, 1930.

17 Baum, H. L.: Tonsillectomy in the treatment of acute cervical adenitis in children. J. A. M. A. 95:1829, Dec. 13, 1930.

18 Leshin, N. and Pearlman, S. J.: Are tonsillar recurrences entirely due to faulty operative technic? Arch. Otolaryng. 13:37, Jan. 1931.

19 Ballenger, H. C.: Appendicitis following tonsillectomy; two cases. Arch. Otolaryng. 12:67, July 1930.

20 Shapiro, S. L.: Deep cervical infection following tonsillectomy. Arch. Otolaryng. 11:701, June 1930.

21 von Hofe, F. H.: Emphysema of the head and neck complicating tonsillectomy. J. A. M. A. 95:934, Sept. 27, 1930.

22 Stroe, A., Hortopan, D. and Bazgan, J.: Gangrenous tonsillitis in scarlet fever. Rev. franç. de pédiat. 7:23, 1931.

23 Allodi, O. F.: Actinomycosis of tonsillar origin caused by industrial accident. Riforma med. 46:254, Nov. 24, 1930.

24 Guttman, M. R.: Alleviation of pain in peritonsillar abscess. Arch. Otolaryng. 11:426, Apr. 1930.

25 Stewart, J. P.: Congenital atresia of posterior nares. Arch. Otolaryng. 13:570, Apr. 1931.

26 Shea, J. J.: Fractures involving the sinuses. J. A. M. A. 96:413, Feb. 7, 1931.

27 Liggett, H.: Parasitic infection of the nose. J. A. M. A. 96:1571, May 9, 1931.

28 Goodyear, H. M.: Use of iodized oil in diagnosis of nasal sinus conditions. J. A. M. A. 95:1002, Oct. 4, 1930.

29 Jones, E. L.: Iodized oil as an aid in the diagnosis of chronic maxillary sinus disease. Arch. Otolaryng. 11:475, June 1930.

30 Dean, A. C. and Morsman, C. F.: Lipiodol as a diagnostic aid in chronic paranasal sinus disease and bronchiectasis. Laryngoscope 41:157-220, Mar. 1931, pg. 196.

31 Richards, G. E.: Chronic infections of maxillary antrums in systemic disease: radiologic study. Brit. J. Radiol. 4:97-144, Mar. 1931.

32 Smyth, D. C.: Progress in laryngology. Arch. Otolaryng. 12:89, July 1930.

33 Granger, A.: Roentgen examination of the paranasal sinuses and mastoids. J. A. M. A. 95:1332, Nov. 1, 1930.

34 Trotter, H. A.: Conservative treatment of chronic maxillary sinusitis. Arch. Otolaryng. 12:18, July 1930.

35 Stevenson, W.: Chronic maxillary sinusitis. Arch. Otolaryng. 13:508, Apr. 1931.

36 Goldsmith, P. G.: The diagnosis and treatment of inflammations of the maxillary antrum. Canad. M. A. J. 23:512-518, 1930.

37 Hunt, J. G.: The rational surgical treatment of chronic antral disease. Canad. M. A. J. 23:386-391, 1930.

38 Cullom, M. M.: External operation on the frontal sinus. Arch. Otolaryng. 11:304, Mar. 1930.

39 Simpson, W. L. and Sanders, S. H.: Interesting observations in more than one hundred external ethmofrontal operations. Tr. Am. Acad. Ophth. 1930, p. 445.

40 Skillern, R. H. and Coates, G. M.: An enormous abscess of the frontal lobe following infection of the frontal sinus: operation: recovery. Ann. Otol., Rhin. & Laryng. 39:398-431, June 1930.

41 Woodward, F. D.: Osteomyelitis of the skull. J. A. M. A. 95:927, Sept. 27, 1930.

42 Pack, G. T. and Craver, L. F.: Tumors of the larynx and thyroid. Arch. Otolaryng. 13:658, May 1931.

43 Pancoast, H. K.: Roentgenology of the upper respiratory tract. J. A. M. A. 95:1318, Nov. 11, 1930.

44 Richards, L. G.: Acute laryngeal obstruction. J. A. M. A. 95:766, Sept. 13, 1930.

45 Tucker, G.: A case of chronic hoarseness (ulcerative laryngitis) showing tuberculosis and cancer of the same lesions. J. A. M. A. 96:1572, May 9, 1931.

46 Schugt, H.: Treatment of tuberculosis of larynx by means of curative paralysis of recurrent nerves. Münch. med. Wchnschr. 77:617-656, Apr. 11, 1930.

47 Heaf, F.: Treatment of tuberculous laryngitis in a sanatorium. Tubercle 12:241-288, Mar. 1931.

48 Simmons, C. C.: Cancer of buccal mucosa. Ann. Surg. 92:481-799, Oct. 1930.

49 Funk, E. H.: The clinical manifestations of primary bronchial carcinoma. J. A. M. A. 95:1879, Dec. 20, 1930.

50 Menne, F. R., Bisaillon, M. and Robertson, T. D.: Bronchogenic carcinoma. Northwest Med. 30:155-204, Apr. 1931.

51 Fremont-Smith, M., Lerman J. and Rosahn, P. D.: Primary carcinoma of the lung; study of 18 autopsied cases. New Eng. J. Med. 203:473, Sept. 4, 1930.

52 Meyersburg, H.: Traumatic perforation of esophagus with mediastinitis; operation and recovery. J. A. M. A. 95: 1341, Nov. 1, 1930.

53 Häggström, P.: Two cases of cardiospasm and dilatation of esophagus with successful operation by Heyrovsky's method; recovery. Acta. chir. Scandinav. 66:345-371, 1930.

MORTALITY RATES

Telegraphic returns from 82 cities with a total population of 36,000,000 for the week ending September 26, indicate a mortality rate of 9.8 as against a rate of 10.5 for the corresponding week of last year. The highest rate (20.1) appears for Knoxville, Tenn., and the lowest (5.1) for Flint, Mich. The highest infant mortality rate (22.3) appears for Nashville, Tenn., and the lowest for Grand Rapids, Mich., and Yonkers, N. Y., which reported no infant mortality.

The annual rate for 82 cities is 12.1 for the 39 weeks of 1931, as against a rate of 12.0 for the corresponding weeks of 1930.—*Issued by the Department of Commerce.*

RADIUM AND BREAST CANCER

Sir George L. Cheatle, consulting surgeon of Kings College Hospital, London, and the recipient of the Royal College of Surgeons' award for research into the treatment of cancer, believes in the benefits to be secured by the use of radium in skin, tongue and certain other areas invaded by cancer. He does not, however, believe that breast cancer is favorably influenced by radium.

Sir Cheatle is scheduled to lecture before the Clinic of the Michael Reese Hospital this month.

MASSACHUSETTS AGAIN

Massachusetts continues to show the way in progressive legislation. She has supplemented her famous Briggs law, requiring that all persons charged with felony be referred to the State Department of Mental Diseases for examination, by two laws relating to youthful offenders. One of these laws requires that a thorough physical and mental examination of all delinquents between the ages of seven and seventeen be made before they are committed to a State training school. The other requires the making of a similar examination of truants and other school offenders before they are committed to a county training school.

These laws do not impose any restriction upon the action of the court. They merely provide that before the court takes action it shall have the findings of capable examiners with reference to the child with whom it is dealing. But, as in the case of the Briggs law, there is no doubt that the new legislation will again help Massachusetts make more effective her treatment of social problems. Again she sets an example for other states to follow.—*Mental Hygiene Bulletin.*

NURSES EMPLOYED IN INDUSTRIAL PLANTS

Following the precedent established by the Vermont Marble Company in the employment of a nurse in 1895 to visit the homes and care for the sick employed in this Company, this plan has been adopted to a large extent as shown by the study of Louise M. Tattershall who reports 2022 nurses in the field of industrial nursing. Of this number only nine per cent. were men.

The functions of the industrial nurse cover emergencies in dealing with sick or injured workmen, instruction in the prevention of disease, and sanitary inspections.

These nurses have established this service as an important responsibility of industrial organizations, but have in some instances created the distrust of physicians because of an invasion of the field of medical practice. Fortunately the over-zealous nurse is not so frequently discredited as observed in the early stages of this custom.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 17421

ABDOMINAL PAIN, HEMATEMESIS, AND HIGH NON-PROTEIN NITROGEN OF THE BLOOD

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. SVEN M. GUNDERSEN*: This patient was an Irish armature winder of fifty years who came into the hospital on February 16 complaining of pain in the abdomen of two years' duration.

Two years before admission he began to have gnawing epigastric pain coming on one to two hours after meals, relieved for an hour or so by taking food and for fifteen or twenty minutes by taking soda. About the same time he began to have occasional attacks of vomiting, at first once or twice a week, gradually increasing in frequency. He had a good deal of gas on his stomach and nausea as well. He did fairly well on a bland diet with powders however, and had several remissions lasting two or three weeks when he had no pain at all, until six months before admission. Then he found that the pain was not entirely relieved by powders or food. He was put on a more rigid diet and was given some pills in addition. The vomiting became more frequent. The changes in diet and medication apparently did no good. Three months before admission the pain was still more frequent and severe and the attacks of vomiting occurred about once a day. Three weeks before admission he was vomiting after almost every meal and the pain was so severe that it interfered with his sleep. Two weeks before admission he was put on a diet of only milk, toast and eggs, but continued to vomit. The vomitus was not remarkable except for slight streaks of blood at times. It consisted only of food eaten at the previous meal. There was never any frank hematemesis.

In addition he was told by his own physician six months before entry that his urine was abnormal; nothing more. He never noticed any real nephritic edema. He had nocturia once a night without any noticeable day frequency for a year before admission. For the three or four weeks before admission the nocturia had increased to five or six times. He had had occipital headaches for four months before admission. For a few days he had had sore throat, slight cough and considerably more malaise, but these symptoms never overshadowed his gastric symptoms.

His past history was essentially negative except for typhoid fever at the age of twenty-two and at forty-two an injury involving the left eye, with partial loss of vision. He had lost forty to fifty pounds during the year before admission. There was never any history of acute nephritis that we were able to elicit.

Clinical examination revealed a man obviously sick, flushed and rather listless. The left iris was deformed by the injury. There was opacity of the cornea on that side. Examination of the fundi revealed only slight signs of arteriosclerosis, no exudate or hemorrhage. The discs were normal. The throat was merely red; there was no tonsillitis. The heart was distinctly enlarged to the left in the region of the ventricle, with a short systolic murmur at the apex. The blood pressure in the Outpatient Department was 160/100 but immediately after admission to the ward it was 140/80. The abdomen was slightly tender in the right upper quadrant but not remarkably so. There was no edema.

The admission urine showed a trace of albumin, a gravity of 1.026, 50 to 60 red cells, 1 to 3 granular casts. The blood count showed no anemia. The admission stool was brown but showed a very strongly positive guaiac, four plus. The first non-protein nitrogen was reported as 120 milligrams and the second, the day after entrance, 145. The first creatinin was 5.2 milligrams, the CO_2 combining power 37.6 volumes per cent.

He seemed to improve for the first few days. He did not vomit and had very little headache, but was rather apathetic and drowsy. We were not sure that he was able to complain of symptoms he might well have had. The history of duodenal ulcer seemed rather definite, dating back several years. We treated him for uremia with a protein-free, salt-free diet, forced fluids and gave milk of magnesia for his bowels. That diet obviously consisted chiefly of fruit juice. He improved. There was never any water retention while he was in the ward. We thought the differential diagnosis rested between acute nephritis and an acute exacerbation of chronic nephritis. Some thought the latter was more likely, although there was no anemia. There were no eyeground changes, but there was definite cardiac enlargement. The blood pressure was elevated constantly after the first few days.

On the twenty-second, six days after admission, he seemed to be getting worse and was put on the danger list. On the twenty-third he was given intravenous sodium bicarbonate, 500 cubic centimeters of 2 per cent solution. The non-protein nitrogen was 165, the CO_2 combining power down to 32.7 per cent. An hour after the sodium bicarbonate was given intravenously he had a severe shaking chill and an hour after

*Recently senior interne on the East Medical service.

that vomited a kidney basin full of blood. The blood pressure still remained at 170/100 and the pulse was good at 110. At the same time we first noted a pericardial friction rub. All fluids were stopped by mouth temporarily and he was given morphia. During the night the blood pressure fell to 80/50 and the pulse to 105, but he was not transfused. Then he had one more hematemesis and passed several tarry stools. The blood pressure and pulse went up very satisfactorily and we started to force fluids again. He seemed a little euphoric and dazed. The sounds of his heart were of good quality, and although a friction rub was heard at times, we thought it unlikely that he had a cardiac thrombosis. We thought it more probably was a fibrinous pericarditis associated with uremia.

On February 26 he started to have more brisk oozing of dark red blood from the rectum and the blood pressure temporarily came down to 125 systolic but a few hours later went up to 190/92. He seemed rather stuporous and that day became incontinent of urine, so he was put on constant drainage. The idea then was that the bleeding was from the rectum, probably from uremic colitis or uremic enteritis.

On the night of March 2, thirteen days after admission, the blood pressure suddenly went down to 66 systolic and the pulse up to 130. By that time there was quite marked anemia, so we felt that he ought to be transfused, and he was. That was the first time fine fibrillary twitching of the extremities was noticed. He never had any frank convulsions. Two days before that he began to show signs in the right chest which at first were thought to be those of pneumothorax, but by March 2 they were obviously those of fluid. The chest was tapped and 100 cubic centimeters of turbid yellow fluid removed which clotted immediately on standing. He had a good reaction to the transfusion that day; the pulse went down and the blood pressure went up satisfactorily. But his clinical condition was not satisfactory. He became more stuporous. On March 2, fourteen days after admission, he had pulsus alternans and definite Cheyne-Stokes breathing. On March 4, sixteen days after admission, he showed a palpable and audible pleural friction rub in the left chest in the anterior axillary line. He was complaining of some pain there. On March 6 he had a pericardial friction rub again and had his first attack of paroxysmal dyspnea, lasting about an hour. That day the CO_2 combining power was down to 33.4 volumes per cent, so he was given more sodium bicarbonate intravenously with good general results. He was getting worse however and did not respond later to intravenous sodium bicarbonate. He had air hunger. He lingered on and on, though we did not see how he could. He died suddenly on March 11, twenty-three days after admission.

Dr. George W. Holmes: The dullness on the right side is of course characteristic of fluid, but once in a while we get as dense a shadow as that from consolidation. With such a large amount of fluid if the patient had not been tapped we should expect the trachea and the mediastinal contents to be displaced. That apparently is not so. The trachea seems to be in the normal position and I should not think the heart was displaced. So that one would have to assume that if there was a large amount of fluid one would have to have collapse of the lung with it. We can get a similar picture, too, from malignant consolidation. On the left side it is normal. The outline of the diaphragm is quite distinct. The outline of the heart is a little large, but about normal. There is nothing in it to suggest fluid in the pericardium.

Clinical Discussion

Dr. William B. Breed: Of course with chronic nephritis and pending uremia, gastro-intestinal symptoms are often rather prominent and we felt on the basis of the history that the question of differential diagnosis was in itself an interesting one. We were unable to study him any further with x-ray. We thought that he undoubtedly did have a peptic ulcer; but we thought because of the type of bleeding he had that he was probably not bleeding from his ulcer but from the mucous membranes of his entire gastro-intestinal tract, due to uremia.

The question that Dr. Holmes brought up about collapse and fluid might be discussed in relation to the first findings on examination of the chest. We thought he had pneumothorax. I bring up the question whether he may not have had pneumothorax at that time, then have rather rapidly filled up with fluid, and then have had complete collapse of the lung and filling up with fluid. I think that will explain the physical findings perfectly well. Did he have a subpectoral, Dr. Gundersen?

Dr. Gundersen: Yes.

Dr. Breed: The question was brought up as to whether a subpectoral needle had been inserted between the ribs and punctured the pleura, filling the pleural cavity with subpectoral fluid. It certainly was a distinct possibility with that particular clinical picture.

Clinical Diagnoses (from hospital record)

Chronic nephritis with acute exacerbation.
Uremia.
Fibrinous pericarditis.
Pleurisy with effusion.
Duodenal ulcer?

Anatomic Diagnoses

Vascular nephritis.
Hypertrophy of the heart.
Fibrinous pericarditis.
Hydrothorax.
Collapse of the right lung.
Petechial hemorrhages of the small and large intestines.

Island of aberrant pancreatic tissue in the wall of the duodenum.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: We did not find any evidence of a needle. His right chest contained an enormous amount of fluid, between two and three liters, in spite of the repeated tappings he had had. The left chest was entirely negative. The "pleural" rub described I think was unquestionably a pericardial rub, since there was typical fibrinous pericarditis. The heart was very big and the rub might well have been felt pretty far out into the axilla.

The only other important finding at autopsy was a marked degree of nephritis. The kidneys were normal in size. The capsules were adherent. They stripped off leaving a very granular surface which was quite pale. I thought on gross examination that it was a subacute glomerular nephritis. In the sections, however, we find no evidence of that at all. It seems to be a purely vascular process. It is surprising if that is the case that hypertension was not more obvious in the hospital. He may have had much more before his heart began to fail.

The heart weighed 700 grams. To produce that it is only reasonable to suppose that he must have had hypertension over a considerable period of time.

We were not able to find any ulcer or definite scar of an ulcer in either the stomach or the duodenum. At the time of autopsy we felt a small indurated nodule in the wall of the duodenum which we thought was probably the healed scar of a duodenal ulcer. On microscopic examination, however, we found it to be an island of aberrant pancreatic tissue embedded in the muscular wall of the duodenum. There were numerous petechial hemorrhages all through the gastric and a considerable portion of the intestinal mucosa. We found more of them in the small than in the large intestine, though it is the colon which usually shows changes in uremia. A number of cases have come to my attention in the past few years which have had pretty brisk hemoptysis when there was nothing found at autopsy to account for it but petechial hemorrhages in the gastric mucosa.

DR. BREED: Was the gall bladder perfectly normal? I should like to explain his months and years of chronic indigestion on some other basis than chronic nephritis.

DR. MALLORY: It was perfectly normal. The best guess that I can make on that is that he may have had a congested liver, although the history sounds peculiar for that.

DR. HOLMES: Was the lung collapsed?

DR. MALLORY: The lung was totally collapsed on the right side.

DR. BREED: You did not find perforation in the pleura?

DR. MALLORY: No, we did not. We were not particularly looking for it. We might easily have missed one.

CASE 17422

A PUZZLING CASE OF ANEMIA IN A MAN OF SIXTY-THREE

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. JOHN W. CASS, JR.*: This patient was a single white native American aged sixty-three, a watchman by occupation. He was admitted on June 1 and discharged June 10. His chief complaints were of pain in the back and progressive loss of weight and strength of six weeks' duration.

He had been perfectly well until six weeks before entry, when in performing his duties as a watchman he received a severe drenching in a rain storm. About twenty-four hours later he had little shooting pains through his chest and down his back. He went to bed with a severe upper respiratory infection and remained there for three weeks, running a low grade temperature he believed. The pains gradually decreased. His appetite however became progressively poorer. He became very weak. After three weeks in bed these pains were completely gone, but on attempting to move about in bed he had severe dagger-like pains shooting down from both scapular regions to the small of his back, so severe that he could hardly move. A doctor was called, who sent him to the Emergency Ward.

His father died at eighty of accident, his mother at sixty of pneumonia and heart trouble. He had one sister living and well. One sister and one brother died beyond middle age of heart disease.

He had his left leg amputated above the knee following an accident at the age of eleven. He denied serious illness. His hearing had been poor for three or four years prior to admission. His teeth had been poor for many years. Fifteen years before admission he had a period of severe night sweats without hemoptysis or cough. His bowels were regular about twice a week. During the past year he had had nocturia three to four times at night with occasional difficulty in starting and stopping the stream. He denied venereal disease by name and symptom.

At admission his temperature was 99° by rectum, his pulse 80, his respirations 20. He was a well-nourished white male in no apparent discomfort, complaining of pain in the lower back. The skin was sallow and pale. The mucous membranes were pale. The teeth were foul. The gums showed marked pyorrhea. The pupils were unequal and irregular. They reacted to light and accommodation. The tongue was pale but not atrophic. The heart and lungs were negative. The blood pressure was 160/90. The abdomen was moderately distended. There was absence of normal liver dullness. No organs were felt. Rectal examination was negative.

*Recently senior interne on the West Medical service.

There was a midthigh amputation on the left. On the right the knee jerk was hyperactive and Babinski was positive.

The urine showed a specific gravity of 1.015, no albumin, occasional red and white cells, no casts. The red blood cell count was 1,000,000 to 1,590,000, the average hemoglobin 30 Tallqvist. The white blood count ranged between 10,000 and 11,000. There was a normal differential count. The red cells showed marked anisocytosis and poikilocytosis. Numerous normoblasts were seen. The stools were negative. A Hinton test was negative. The non-protein nitrogen was 44. The bleeding time and the clotting time were normal.

X-ray examination showed the heart and lungs normal. There were no metastases to the spine, the skull or the long bones. The diaphragm on the right was high, sharply domed and slightly lobulated.

The patient was very anemic, having a red blood count of about 2,000,000 in the Emergency Ward. Blood consultants differed. One gave the opinion that the picture was identical with that found in carcinomatosis. Another believed the case was pernicious anemia. The patient responded however only temporarily to liver and iron by mouth and to two transfusions. He soon failed. He took very little nourishment. He was given another transfusion to which he did not respond. He went steadily downhill and died ten days after admission.

Clinical Discussion

Dr. Gerald Blake: It was a puzzle to us to explain the profound degree of anemia this man had. We could not put a finger on any definite pathologic findings on his examination. The question came up as to whether it was the terminal stage of primary anemia, but the lack of response to liver or transfusion ruled that out. He had a very profound secondary anemia for which we could find no cause. Our guess was that he had a hidden malignancy with metastasis, but where the original focus was and where the metastasis was we could not say.

Clinical Diagnosis (from hospital record)

Anemia, cause and type unknown.

Anatomic Diagnosis

Carcinoma of the stomach (possibly originating from a pancreatic rest) with metastases in the liver, the retroperitoneal lymph nodes and the bone marrow.

Pathologic Discussion

Dr. John I. Bradley: Interest was immediately aroused in this autopsy by the finding, when the abdominal cavity was opened, of numerous small yellowish-white nodules 2 to 4 millimeters in diameter over the surface of the liver. Section showed numerous similar small nodules scattered throughout the liver. The retroperitoneal lymph nodes in the upper abdomen were moderately enlarged, firm and white. They had the appearance of malignant involvement. A frozen section showed carcinoma. An extensive search for its origin was made but no definite primary focus was found. The one possibility was a small area of thickening in the central portion of the lesser curvature of the stomach. The mucosa over it however was intact and the lesion would not have attracted attention if one had not been making a careful search for a primary focus.

Sections of the thickened area in the stomach show a diffuse scirrhous carcinoma in the muscularis and the serosa. The mucous membrane however is uninvolved.

The bone marrow in the lumbar vertebrae was pinkish red; in the femur it was dark red and appeared hyperplastic.

The sections from the enlarged retroperitoneal lymph nodes show a diffuse infiltration by tumor, a tumor made up of discrete round cells, occasionally multinucleated, without structural differentiation.

The autopsy was performed nineteen hours after death and there are marked postmortem degenerative changes, particularly in the bone marrow, so that most of the cells in the sections of the bone marrow first studied are almost completely necrotic. In a few areas however they are preserved. Where they can be identified they are large immature cells and a number of them show a definite large vacuole. A number of them are practically identical with the tumor cells in the lymph nodes.

Additional sections of both the vertebral and sternal marrow show an extensive marked infiltration by tumor cells resembling those in the stomach and showing in places a suggestion of imperfect gland formation. They also show a number of areas of hematopoiesis between the deposits of tumor cells. No areas of active blood formation can be made out.

The liver is of further interest in that there are numerous normoblasts in the sinusoids.

I feel that the evidence is strong enough to attribute the anemia to metastatic malignancy.

Dr. Tracy B. Mallory: Cases of cancer apparently primary in the stomach but without the almost invariable involvement of the mucous membrane are seen from time to time. This is the second one which we have had in this hospital in five years. A possible origin may be from pancreatic rests, as was suggested by Pförringer*. He described a case of cancer of the stomach without involvement of the mucous membrane in which he was able to find foci of accessory pancreatic tissue in the pylorus and in the duodenum. He made the suggestion that the carcinoma had arisen from a third one, since these rests are frequently multiple. Although we have no positive evidence of such an origin in our case it seems not improbable.

*Pförringer, S., Beitrag zum Wachstum des Magencarcinoms. Bruns' Beitr. 41, 687.

The New England
Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY under the jurisdiction of the

COMMITTEE ON PUBLICATIONS

HOMER GAGE, M.D. JOHN W. BARTOL, M.D.
ROGER I. LEE, M.D. ROBERT B. OSGOOD, M.D.
EDWARD W. TAYLOR, M.D.

EDITORIAL STAFF

DAVID L. EDSALL, M.D. STEPHEN RUSHMORE, M.D.
REID HUNT, M.D. HANS ZINSSER, M.D.
JOHN P. SUTHERLAND, M.D. BENJAMIN WHITE, PH.D.
GEORGE R. MINOT, M.D. HENRY R. VIETS, M.D.
FRANK H. LAHEY, M.D. ROBERT N. NYE, M.D.
SHIELDS WARREN, M.D. ROBERT M. GREEN, M.D.

WALTER P. BOWERS, M.D., *Managing Editor*

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D. WILLIAM B. BREED, M.D.
JOSEPH GARLAND, M.D.

THE NEW HAMPSHIRE MEDICAL SOCIETY
PUBLICATION COMMITTEE

D. E. SULLIVAN, M.D. H. H. AMSDEN, M.D.
R. H. MARCOTTE, M.D.

THE VERMONT STATE MEDICAL SOCIETY
PUBLICATION COMMITTEE

WILLIAM G. RICKER, M.D. C. F. DALTON, M.D.
J. A. WARK, M.D.

SUBSCRIPTION TERMS: *$6.00 per year in advance, postage paid for the United States, Canada $7.04 per year, $7.56 per year for all foreign countries belonging to the Postal Union.*

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 8 The Fenway.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The New England Journal of Medicine, 8 The Fenway, Boston, Mass.

MEDICINE AND CRIMINOLOGY

AT first thought it would not seem that the practice of medicine and the study of criminals have a particularly close relationship. In his monograph on "The Personality of Criminals"*, Dr. A. Warren Stearns, Commissioner of Correction for the Commonwealth of Massachusetts, shows very clearly that such a relationship does exist, and that the professions of medicine and criminology have many overlapping interests.

In discussing the determinant factors of normal conduct, Dr. Stearns emphasizes the value of early training. "Natural conduct," he says, "is not normal conduct. Normal conduct is natural conduct conditioned to meet the exigencies of the situation in which we live." "The tendency to conform to the ways and manners of associates perhaps furnishes the strongest single motive." According to a long-established classification, those individuals who do not conform to social requirements or necessities are "sick, poor, or bad". The medical profession has made great progress in the care of the sick; as regards the poor, we now realize that a tremendous amount of poverty is due to physical and mental disease. It is gradually being understood that even in the case of the "bad", large numbers are suffering from diseases of mind and body. Striking examples are given of cases in which a crippling injury, by depriving an individual of his customary work, has driven him to adopt criminal ways of earning a living. With arterial, kidney or cardiac disease, individuals are unable to pursue gainful occupations, and soon they become tramps or vagrants.

Dr. Stearns believes that a large percentage of our criminal population has become criminal through situational or environmental influences, and not because of true mental abnormality. Yet in a study of 100 consecutive admissions to the Charlestown State Prison in which the crime was murder the author found that in thirty-four alcoholism, acute or chronic, was an important factor; in twenty, there was a well-marked departure from normal mental condition.

Many of the prisoners in our jails have long records of previous convictions; often these began in youth and the history of them should have served to show the ultimate end towards which the individual was heading. The keynote of success in diminishing crime, Stearns believes, is the intelligent use of the case history; this should give the hereditary, environmental, educational and physical factors relating to the individual. Police officers, to be deterrents of crime instead of mere instruments of punishment, must become, to some extent, social workers. The courts, in disposing of a criminal after he has been found guilty, should study the causes which lay behind his acts, and should send him to the institution best adapted to remedy the defects in his character. Dr. Stearns believes there is need for "clearing houses" where prisoners may be sent prior to sentence in order to undergo thorough study. The knowledge gained in this way will be of assistance to the judge in determining what disposition should be made of the prisoner. Comparatively large numbers of persons are now sent to penal institutions who should go to hospitals.

One need not read far in Dr. Stearns' book to appreciate how closely criminology is connected with medicine. The whole problem of crime is, in a large sense, a problem of disease—of disease not alone in the individual, but in society. As Dr. Stearns points out, the remedy consists first in diagnosis, in a study of causes. The indications for future endeavor are: "first, renewed and increased efforts in character building, and in protecting the handicapped, especially during childhood; second, the modification of social custom in so far as it has to do with the care of the criminal; third, vigorous study of the subject from all angles, with an abiding faith that science and scientific methods once applied to this field, will ultimately show us the way".

*The Personality of Criminals. By A. Warren Stearns, M.D. Published by The Beacon Press, Inc., Boston, Mass. 146 pages. Price $2.00.

THE TRIBUTE TO DR. WALTER BRADFORD CANNON

It is with pleasure that the *Journal* is privileged to record the exercises which the intimate friends of Dr. Walter B. Cannon have arranged in his honor*. This brief compilation of his accomplishments and the wide range of degrees conferred upon him indicate the appreciation of the scientific world of the importance of his contributions to the solution of the mysteries of animal life.

One outstanding feature of Dr. Cannon's life has been the quality and breadth of his relations with those who are included in the circle of his intimate friends.

The City of Boston and Harvard University will always take pride in having been able to provide the facilities which have been adjuncts to his mental and physical endowments and which together have enabled him to take a commanding position in the scientific world.

The detailed accounts of the celebration which will be published in the lay press and scientific journals will be read with pleasure all over the world.

The *New England Journal of Medicine* extends its warmest felicitations to Dr. Cannon with the hope that his activities may be continuous through many years.

*Page 779.

A SOCIETY WHICH MERITS THE SUPPORT OF THE MEDICAL PROFESSION

On October 22, inst. the Massachusetts Medical Benevolent Society will hold its annual meeting. Dr. Robert M. Green will give a short history of this organization. Dr. Roger I. Lee will define its benevolent activities. Dr. George G. Sears, who has served as president in recent years, and Dr. Hilbert F. Day, Secretary, will also speak. The charitable features of the activities of this Society have been carried on so unostentatiously that few have learned of the help rendered to those doctors and members of doctors' families who have suffered reverses.

Until very recently Dr. William L. Richardson, with the coöperation of the other officers, has attended to the details of meeting the needs of those for whom the Society was created.

It would be well for all who have the well-being of disabled doctors at heart to become informed of the history of the Society and take on membership obligations.

A few years ago efforts were made to interest the profession in a national movement to provide a home for infirm doctors or their dependents which developed some interest in Massachusetts, but study of conditions here seemed to indicate that more support for the Medical Benevolent Society would enable it to meet the needs of those eligible for consideration who are unable to care for themselves. Rather than to follow the suggestion of sending these unfortunate people away from home it is probably much more humane to provide for them necessities and even some luxuries in their homes or among lifelong friends.

The medical profession is proverbially generous in the service rendered to humanity and is equally so in material assistance to its fellows. That sufficient funds are not available for the broadest generosity is because many are not cognizant of the opportunities for this exhibition of brotherly concern.

To those of our readers who are not members of the Massachusetts Medical Benevolent Society we suggest making application to the Secretary for inclusion in its roster.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Putnam, Tracy J. A.B., M.D. Harvard University Medical School 1920. Associate in Neurosurgery and Assistant Visiting Physician for Neurology, Boston City Hospital. Address: 918 Medical Building, Boston City Hospital, Boston. Associated with him is:

Munro, Donald. A.B., M.D. Harvard University Medical School 1916. F.A.C.S. Visiting Surgeon for Neurosurgery, Boston City Hospital, in charge of the Department of Neurosurgery. Address: 918 Medical Building, Boston City Hospital, Boston. Their subject is "Myelotomy in the Treatment of Syringomyelia." Page 747.

Mintz, E. Ross. M.D. Université de Paris 1928. Resident Surgeon, Massachusetts General Hospital in the Urological Service. His subject is "Sarcoma of the Bladder in Children, with Report of a Case." Page 756. Address: Massachusetts General Hospital, Boston.

Menard, O. J. B.S., M.D. Jefferson Medical School 1926. Assistant in Medicine, Lahey Clinic. Address: 605 Commonwealth Avenue, Boston. Associated with him is:

Hurxthal, L. M. M.D. Harvard University Medical School 1923. Physician, Lahey Clinic. Address: 605 Commonwealth Avenue, Boston. Their subject is "Results of the Use of Stramonium Datura in Parkinson's Disease and Post-encephalitic Parkinsonism." Page 759.

Schall, LeRoy A. M.D. Jefferson Medical College 1917. F.A.C.S. Instructor in Laryngology, Harvard Medical School, Courses for Graduates. Assistant Examiner, American Board of Otolaryngology. Associate Surgeon, Massachusetts Eye and Ear Infirmary and Massachusetts General Hospital. Assistant Otolaryngologist, Robert B. Brigham and Newton Hospitals. Visiting Surgeon, New England Peabody Home

for Crippled Children. Consulting Otolaryngologist, U. S. Marine Hospital No. 2. His subject is "Progress in Laryngology." Page 763. Address: 270 Commonwealth Avenue, Boston.

WALTER BRADFORD CANNON, M.D.

GEORGE HIGGINSON PROFESSOR OF PHYSIOLOGY

September 27, 1906—September 28, 1931

WALTER BRADFORD CANNON, M.D.

IN celebration of Dr. Cannon's twenty-five years as Professor in Harvard University, the afternoon and evening of October 15, 1931 have been set aside for exercises befitting the occasion.

PROGRAM

Amphitheatre, Building C, Harvard Medical School, 4 P. M., Dr. Edsall presiding.

Dr. Walter C. Alvarez, The Mayo Clinic, Rochester, Minn. "Influence of Dr. Cannon's Work Upon Medical Thought and Progress."

Dr. William H. Howell, Johns Hopkins School of Hygiene. "The Development of Physiology During the Past Twenty-five Years and Dr. Cannon's Influence Upon It."

Dinner, Vanderbilt Hall Gymnasium, 7.30 P. M. President Lowell presiding

Dr. Graham Lusk, Professor of Physiology, School of Medicine, Cornell University. "The Life of a Professor."

Presentation to the Medical School of the portrait of Dr. Cannon.

HENRY A. CHRISTIAN, *Chairman,*
HARVEY CUSHING,
ALEXANDER FORBES,
ALFRED C. REDFIELD,
CECIL K. DRINKER.

DOCTOR CANNON has had an uninterrupted association with Harvard University through his undergraduate years, as a medical student and as a member of the staff. Rising from rank to rank he became George Higginson Professor of Physiology in September 1906, the time at which the School occupied the present buildings. He succeeded the late Doctor Henry P. Bowditch, whose guidance had been fruitful in his early years of research.

Doctor Cannon's studies in Physiology fall into two chief groups. From their inception, before his graduation in Medicine, down to about 1910 they were directed chiefly to the motor reactions of the alimentary tract. He was a pioneer in the employment of the x-ray and bismuth salts for such observations. His findings are embodied in the important book, "Mechanical Factors of Digestion" (1911). A little later he reverted to these matters and demonstrated the physical basis of the sensation of hunger (1912).

The second period began about 1911 as a result of his deliberate decision to enter a new field. With the conviction that his own development required an extension of interests, he turned away from problems of gastro-intestinal physiology which still challenged his ingenuity. For twenty years he has investigated the rôle of the autonomic system and the closely allied endocrine tissues, preëminently the adrenal medulla. Facts were early accumulated which encouraged the generalization that the sympathetic, reinforced by adrenal secretion, confers on an animal the utmost command of its resources. This thesis — the "Emergency Theory"—is central in the book. "Bodily Changes in Pain, Hunger, Fear and Rage" (1915, 1929). The volume is at once scientific and engrossing for the general reader.

The long series of researches in this province was intermitted in 1917-19 when Doctor Cannon was in service in France and England. In the hospitals he gave his best energies to discover the conditions underlying surgical shock. He tested his inferences by animal experimentation. He was able to make a substantial contribution to the control of this baffling and hazardous state and thus to the conservation of human

life. He delivered the Croonian Lecture of 1918 on the subject of "Thirst", citing interesting experiments of his own. From time to time he has written effectively in defense of the rights of the investigator. His analysis of the manifestations of emotion has brought him into stimulating discussions with the psychologists. A recent interest has been the subject of Homeostasis, the maintenance in the body of "steady states" in the face of influences tending to disturb them. Other studies have dealt with the denervated heart, with insulin, and with thermogenesis.

Most of Doctor Cannon's experimental studies are published in the *American Journal of Physiology*. It is impressive to find his name associated with seventy-two articles in this periodical. Of twenty-four he is the sole author; in the others the number of his collaborators is forty-three. Many whose papers appear under their own names are quite as definitely pursuing courses projected by him. They have come to his laboratory from all quarters of the globe and have returned stimulated to worthy production. "Their line—his line—is gone out into all lands."

He has always at hand suggestions for potential investigations. The student who has been questioning whether any fresh problems remain to be attacked comes away from an interview with his chief fully convinced that they abound. Often the observations recommended are simple in their nature and call for no elaborate technique. Doctor Cannon's genius has made it possible for him to find, even at this late day, work of the elementary type which the physiologists of a century ago had ready to hand. One recalls, for example, his use of the stethoscope to detect gastric and intestinal rhythms within his own body. At the same time he is a most accomplished surgeon. Witness his extraordinary feat of complete sympathectomy with survival of the animal.

He is a lecturer of rare charm. Oliver Wendell Holmes was once Professor of Physiology as well as of Anatomy at Harvard and there is ground for the claim that his mantle has fallen on his successor—one of his mantles, let us say, since Doctor F. T. Lewis appears to be the wearer of another. The writer has often said that Doctor Cannon should have a faithful Boswell to record his spontaneous and delightful sayings. "To claim that motor impulses originate in the traditional motor cortex is like asserting that all the passengers in an outbound train were born in the terminal station." "Consciousness, our power to sit up and take notice" —does this not balance the scales judicially between Behaviorism (sitting up) and Idealism (taking notice)? To a class beginning work in the laboratory: "This is not the place to adopt the injunctions of the hymn, "Awake, my soul, *stretch every nerve* and *press* with vigor on." Every year a fresh notebook might be filled with such quotations.

Doctor Cannon is known to a wide circle as a leader in Physiology, distinguished equally for the range of his scientific imagination and for the scientific conscience which insists on the most rigorous testing of each induction. He is recognized as a skilled experimenter, a writer and speaker of clarity and grace. To a smaller but still numerous group, privileged to come into personal contact with him, he is all this and more. We know his tolerance, patience, tact and ready sympathy.

Some years ago a great gathering of men interested in electricity, to honor one who has much in common with Doctor Cannon, bestowed on him the novel degree of E.M.F. In view of the translation then announced one feels that we have now another candidate for the high distinction of being Every Man's Friend.

DEGREES CONFERRED UPON WALTER BRADFORD CANNON

Bachelor of Arts, Harvard University, 1896.
Master of Arts, Harvard University, 1897.
Doctor of Medicine, Harvard University, 1900.
Doctor of Science, Yale University, 1923.
Doctor of Laws, Wittenberg College, 1927.
Doctor of Laws, Boston University, 1929.
Doctor, *honoris causa*, University of Liége, 1930.
Doctor, *honoris causa*, University of Strasbourg, 1930.
Instructor in Zoölogy, Harvard University, 1899-1900.
Instructor in Physiology, Harvard University, 1900-1902.
Assistant Professor of Physiology, Harvard University, 1902-1906.
George Higginson Professor of Physiology, Harvard University, 1906-
Acting Dean, Harvard Medical School, September 1926-March 1927.
Exchange Professor, University of Paris, Second-half year, 1929-1930.

SOCIETIES, COMMITTEES AND CLUBS IN WHICH DR. CANNON HOLDS MEMBERSHIP

Phi Beta Kappa, 1895.
Fellow, American Association for the Advancement of Science, 1904.
American Physiological Society,
Treasurer, 1905-1912.
President, 1914-1916.
Society for Experimental Biology and Medicine, 1904.
Phi Rho Sigma, 1905.
Alpha Omega Alpha, 1906.
American Academy of Arts and Sciences, 1906.
Vice-President, Class II, 1931.
Boston Society of Medical Sciences,
President, 1908.
Massachusetts Medical Society, 1904.
American Medical Association, 1905; Fellow since 1913.
Member of Council on Health and Public Instruction, 1911-1922.
Chairman, Committee for the Protection of Medical Research, 1908-1925.
American Gastroenterological Association, 1907.
President, 1910-1912.
Honorary Member, 1926.
American Philosophical Society, 1908.

Harvey Society, New York City, Honorary Member, 1911.
American Psychological Association, 1912.
Associate Member, 1925.
Consulting Physiologist, Peter Bent Brigham Hospital, 1912.
Chairman, Commission on Electric Shock, National Electric Light Association, American Institute of Electrical Engineers and The American Medical Association, 1912-1913.
Harvard Club of Boston, 1912.
American Roentgen Ray Society, Honorary Member, 1913.
Consulting Physiologist, Boston Children's Hospital, 1914.
Chairman, Commission on Resuscitation from Mine Gases, U. S. Bureau of Mines, 1914.
National Academy of Sciences, 1914.
Chairman, Division of Physiology and Pathology, 1925-1928.
Member of Council, 1928-1931, 1931-
New York Roentgen Ray Society, Honorary Member, 1914.
Association of American Physicians, 1914.
Trustee, Elizabeth Thompson Science Fund, 1915.
Secretary, 1916-1922.
Société de Biologie, Paris, Corresponding Member, 1919.
Corporation and Board of Directors, Robert B. Brigham Hospital for Incurables, 1921-1924.
Charter Member, Association for the Study of Internal Secretion, 1921.
President, 1921-1922.
Committee for Research in Problems of Sex, National Research Council, 1921.
Vice-President and Chairman of Executive Committee, Ella Sachs Plotz Foundation, 1921. One of original members.
Reale Accademia della Scienze, Bologna, Corresponding Member, 1921.
Sociedad de Biologia, Buenos Aires, Honorary Member, 1922.
Chairman, Committee on Pernicious Anemia, Harvard University, 1927-1929.
Commission on Epilepsy, Harvard University, 1928.
Société Belge de Giologie, Brussels, Associate Member, 1929.
Société de Psychologie, Paris, Associate Member, 1930.
Royal Society, Edinburgh, Foreign Honorary Fellow, 1930.
American Psychopathological Association, Honorary Member, 1931.

DR. CANNON'S POSITIONS AS LECTURER INCLUDE THE FOLLOWING:

Wesley Carpenter Lecturer, New York Academy of Medicine, 1914 and 1923.
Croonian Lecturer, Royal Society, London, 1918.
First Lecturer, Wisconsin Alumni Research Foundation, 1929.

HIS WAR SERVICE IS AS FOLLOWS:

Commissions
First Lieutenant, April 21, 1917.
Captain, August 11, 1917.
Major, February 10, 1918.
Lieutenant-Colonel, October 23, 1918.
April 21, 1917—June 23, 1917, Director of the Laboratory, U. S. Base Hospital No. 5, in British Service at Camiers, France.
June 23, 1917—October 23, 1917, at No. 33 Casualty Clearing Station, Bethune, France; collaborating with Captain John Fraser, Captain E. M. Cowell, and Captain A. N. Hooper in studies of shock and hemorrhage.
August, 1917, Member of the English Committee on Shock, formed by Professor W. M. Bayliss.
October 23, 1917—February 15, 1918, Physiological Laboratory, University College, London; continuing, with the help of Professor Bayliss, experiments on the nature of wound shock and the effect of cold on blood pressure.
1917-1918, Chairman, Red Cross Medical Research Society, Paris.
February 15, 1918—April 1, 1918, Interallied Conference on Gas Warfare, Paris.
April 1, 1918—December 25, 1918, In charge of a laboratory for surgical research, established by General J. H. T. Finney, at the Central Medical Department Laboratory, Dijon, France. During this period, President of the Anglo-American Medical Society.

DECORATIONS

Companion of the Bath, England, 1919. Conferred for "meritorious services for the allied cause".
Distinguished Service Medal, U. S. A., 1922.

THE BOSTON MEDICAL LIBRARY

FRANCOIS RABELAIS
1483-1553

As a "struggle between erudition and medicine" Anatole France describes the later years of Rabelais' career. Such has doubtless been the case in the life of many a man, who for one reason or another has found the paths of science and the humanities of almost equal attractiveness. The many years that Rabelais spent in monastic seclusion in the study of philosophy, theology, the mathematical sciences, law, music and the arts, sharpened to a keen edge the intellect which an awakened interest in literature and the new science was soon to find a worthy champion. It was probably better for the world of letters that in the end erudition won, rather than that medicine should have claimed him for her own.

François Rabelais was born in Chinon in the Province of Touraine, France, in 1483. If this was so, it was the same year that Luther and Raphael first saw the light. The town is a very ancient one and some one of its citizens, because Gregory of Tours called it Caïno, believed it to have been founded by Cain, the first builder of cities. However this may be, the Province has been the birthplace of some of the most distinguished Frenchmen; Richelieu, France's greatest statesman, Descartes, her most distinguished philosopher, Balzac, her greatest novelist, and André Duchesne, one of her outstanding scholars. Rabelais' father, said to have been an apothecary, owned an estate, probably a vineyard, called Le Devinière, on the edge of the town. There were five sons and no daughters but Rabelais himself has little to say of his family, probably because he was sent away so early to the life of the cloister, and it was not

until after he was forty years old, when he first began to write, that he makes any reference to his childhood, his father, or to the beauty of the environs of Chinon. It was only for nine years that he lived here before he was sent to a convent at Seuilly. Chronologically this occurred just as the Renaissance was getting under way, but little of its spirit had sifted through to the convent where he was first immured. How long he remained here is not known but he next appears to have been transferred to La Baumette, near Angers. Somewhat the same traditions of royalty and majesty surrounded this place as characterized Chinon and it appears that here his education first really began. The printing press was at work in Paris, Budi was teaching Greek, and a French edition of the Bible was being produced by d'Etaples. It was the calm before the storm which was to come when the spirit of the search for truth was to take possession of the world. Why Rabelais, who up to this time, had had no choice as to his life's work, should have elected to have become a Franciscan Friar, than whom there were none who looked with more suspicion upon education, is not apparent, but that is what he did and he joined the above order at Fontenay-le-Comte, in Poitou. Here he made friends both within and without the monastery and had access to books, until they were, for a time, taken away from him and he was severely disciplined for having ventured to indulge his thirst for knowledge. This occurred in 1523; in 1524 he took "French leave" of the monastery where he had progressed by the usual stages to the order of the Priesthood. He was in his forty-first year and had been under monastic discipline for thirty years. The succeeding six years were spent in freedom, getting that experience of life that most men get from twenty-five to forty. His studies during this time seem to have been largely along botanical and medical lines. At the end of this period, in 1530, he determined to study medicine and enrolled himself at Montpellier on the seventeenth of September of that year.

For the ordinary matriculant in medicine at Montpellier at the time, after passing his entrance examinations in logic and philosophy, there were three years of lectures which he must attend, leading up to the Bachelor's degree, if he passed his tests; three months later an application for license to practice would be entertained but before this was granted four theses had to be presented. If satisfactory the license was issued with the utmost formality but the Doctor's degree could only be obtained by passing a much more rigid test in six subjects, lasting for three days. On receiving a two-thirds vote of the Faculty the candidate was most formally invested with his title, accompanied by the ringing of bells, playing of bands and the delivery of Latin orations.

In the case of Rabelais all this was set aside and he was given his Bachelor's degree after two months of residence, and began immediately to lecture on the Aphorisms of Hippocrates. In 1532 he left, not to return until 1537, when he obtained his Doctor's degree and lectured in Greek on the Prognostics of Hippocrates. Subsequent to this he spent some time in attendance upon Hospital work in Lyons but was thrown more and more into the society of literary people and wrote very little upon the serious subjects in medicine thereafter. At the beginning of 1552 he became physician to the Hôtel Dieu at a salary of 40 livres per year. He made public dissections at the Hospital and attended to its patients. He sought out Sebastian Gryphius, the noted printer of Lyons, absenting himself from the Hôtel Dieu without leave. He was immediately replaced for this offense. In order to live he turned to writing and in collaboration with the famous printer, renowned for the beauty of his Greek and Latin texts, he published in 1532 the Epistolae Medicinales Manardi and the Aphorisms of Hippocrates. He also published a few minor works, collections of predictions, vulgar stories, maxims and almanacs for the common people, and in 1552 he produced "The Great and Inestimable Chronicles of Gargantua." As a sequel, encouraged by the success of the chronicles, he added his Pantagruel and a revamped Gargantua. It is in these works that the real Rabelais expressed himself, and as Arthur Tilley says of him, "he is the embodiment not only of the early French Renaissance, but of the whole Renaissance in its earlier and fresher manifestations, in its devotion to humanism, in its restless and many sided curiosity, in its robust enthusiasm, in its belief in the future of the human race".

MISCELLANY

A RADIO MESSAGE PREPARED AND SPONSORED BY THE COMMITTEE ON PUBLIC EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE DEPARTMENT OF PUBLIC HEALTH

Nerves*

There are certain diseases which are dreaded by everyone, largely because they threaten life—such diseases as tuberculosis, cancer, heart disease, pneumonia, etc. Contrasted with these are diseases whose main and outstanding threat is to happiness and efficiency, since life itself is not shortened or threatened by them. These diseases are lumped together in the lay mind under the term "nervousness", which, like many another widespread term, *itself* implies that here are nervous and mental dis-

*Broadcast September 24, 1931, Station WBZA—5:17 P. M.

orders in which no alteration can be found in any part of the nervous system. In this particular, these conditions differ from such diseases as locomotor ataxia, cerebral hemorrhage and tumor of the brain, because there are marked changes in the structure of the nervous system in the latter troubles. One might compare the psychoneuroses to a watch which needed oiling or cleaning, or merely a winding up, as against one in which a vital part was broken.

These psychoneuroses are divided by physicians into three kinds—neurasthenia, psychasthenia, and hysteria. I am going to discuss only the first of these, neurasthenia, because this is the most common and the least difficult to understand of the three. It may be stated that fundamentally neurasthenia is marked by an increased liability to fatigue. The tired feeling that comes on with a minimum of exertion, worse on arising than going to bed, is its distinguishing mark. Sleep, which should remove the fatigue of the day, does not; the victim takes half of his day to "*get going*"; and at night, when he should have the delicious drowsiness of bedtime, he is wide-awake and disinclined to go to bed or sleep. This fatigue enters into all functions of the mind and body. Fatigue of mind brings about lack of concentration, an inattention, and this brings about an inefficiency that worries the patient beyond words as portending a mental breakdown. Fatigue of purpose brings a listlessness of effort, a shirking of the strenuous, the more distressing because the victim is often enough an idealist with over-lofty purposes. Fatigue of mood is marked by depression of a mild kind, a liability to worry, a lack of enthusiasm for those one lives with or for the things formerly held dearest. And, finally, the fatigue is often marked by a lack of control over the emotional expression so that anger blazes forth more easily over trifles, and the tears come upon even a slight vexation. To be neurasthenic is to magnify the pins and pricks of life into calamities, and to be the victim of an abnormal state that is neither health nor disease.

In addition to this central group of symptoms are first, pains and aches of all kinds, which are really more often disagreeable feelings than true pains; second, changes in the appetite and in the condition of the bowels; third, insomnia or disturbed, restless slumber. We look to the bed as a refuge from our troubles, as a sanctuary wherein is rebuilded our strength. We may link work and sleep as the two complementary functions necessary for happiness. If sleep is disturbed, so is work, and with that our purposes are threatened. So disturbed sleep has not only its bodily effects, but has marked results in the effect on happiness.

Fundamental in the symptoms of neurasthenia is fear. This fear takes two main forms: First, the worry over the life situation in general, fear which extends to all the comings, goings, and doings of life, a form of fear-thought which is both a cause of neurasthenia and a symptom; and, second, a special form of worry called hypochondriacism which essentially is fear about one's own health. The hypochondriac magnifies every flutter of his heart into heart disease, every stitch in his side into pleurisy, every cough into tuberculosis, every pain in the abdomen into cancer of the stomach, and every headache into the possibility of brain tumor or insanity.

Such are a few of the main symptoms of neurasthenia. It may range from mere fatigue, pain, and insomnia to a profound loss of energy, with fear, anxiety, and almost complete prostration.

We may discuss as causative of this condition certain fundamental situations. We must start with the statement that mind and body are one, that what happens to one physically may change the whole trend of thinking, feeling, and acting, and what happens to one mentally, either as an idea or emotion, may change the workings of the body, disturbing sleep, digestion, and the coördinated action of the great organs of the body. All mankind knows this in the sense that all language crystallizes these beliefs, but it is rarely taken into account either by medical men or the laity.

Thus we may establish as causative of this state certain physical situations. It may follow exhausting illness, surgical operation, difficult childbirth, and any situation which drains the energy and resources of the organism. Such conditions are common after influenza, pneumonia, and after those surgical operations where the patient is allowed too quickly to get back to his duties. One of the crying needs of every community is an institution where people may rest after an exhausting illness.

Just as surely as physical situations may cause neurasthenia, psychasthenia, or hysteria, so mental situations may cause them, and, in fact, are undoubtedly more important in the majority of cases in their genesis. There are situations in which fear arises as a sudden and overpowering emotion, such as on the battlefield or in the perilous places in industry or on the streets of the cities, and occasionally even in the safest and coziest nook of the home. The traumatic neurosis, so-called, has its origin, at least in part, in the deënergizing result of fear, and in the persistence of the emotion for many and many a day to come. For fear may act as a most potent drug, and its physical effects range from the cold chill, the rapid heart, the sharp, painful respiration, and the all-gone feeling in the abdomen, to the most complete unconsciousness. Indeed, all emotions are as much physical as mental, and he is a shallow thinker and a poor physician who dismisses the emotional state of the patient as unworthy his most careful and detailed attention.

But in addition to these sudden overpowering emotional states, there are more constant mental situations of a disagreeable kind. Whether there is a subconsciousness or not, this can be affirmed—that every human being is a pot boiling with desires, passions, lusts, wishes, purposes, ideas, and emotions, some of which he clearly recognizes and clear-

ly admits, and some of which he does not clearly recognize and which he would deny. These desires, passions, purposes, etc., are not in harmony one with another; they are often irreconcilable, and one has to be smothered for the sake of the other. Thus, a sex feeling that is not legitimate, an illicit forbidden love has to be conquered for the sake of the purpose to be religious or good, or the desire to be respected. So one may struggle against a hatred for a person whom one should love—a husband, a wife, an invalid parent, or child whose care is a burden—and one refuses to recognize that there is such a struggle. So one may seek to suppress jealousy, envy of the nearest and dearest; soul-stirring, forbidden passions; secret revolt against morality and law which may (and often does) rage in the most puritanical breast.

In the theory of the subconscious these undesired thoughts, feelings, passions, wishes, are repressed and pushed into the innermost recesses of the being, out of the light of the conscious personality, but nevertheless, acting on the personality, distorting it, wearying it.

However this may be, there is struggle, conflict in every human breast, and especially difficult and undecided struggles in the case of the psychoneurotic. Literally, secretly, or otherwise he is a house divided against himself, deënergized by fear, disgust, revolt, and conflict. It is in these conflicts and their results that the major part of neurasthenia, psychasthenia, and hysteria arises, in disgust, dissatisfaction, impotent revolt, and the splitting of the personality that comes when one part of us cannot live harmoniously with other parts.

The task of the physician in these cases is first of all to diagnose the situation, to make sure that he is not dealing with organic disease masked by a psychoneurosis. Thus, it must be emphasized as fundamental that in no case should the diagnosis be made until organic situations are excluded.

Secondly, the physician must then discover, the physical factors out of which the condition has, in part, its origin, in bad habits of eating and sleeping, in bad habits of work and play, in poorly conducted organic habits, such as the care of the bowels. He must take whatever steps seem necessary to cure loss of appetite, disturbed sleep, and must prescribe medicines, fresh air, massage, and exercise according to the physical situation.

Thirdly, he must do far more than these things. He must probe into the life of the patient and discover the mental causes, the dissatisfactions, the revolts, the disgusts, the forbidden desires, and the dissociations and conflicts that are back of the symptoms. He must harmonize the personality of the patient, must reconcile one phase to another, and bring about a philosophy of life, either of renunciation or achievement, that will meet the situation. He must teach control of emotions and inculcate new purposes and ambitions, or restore the old ones if these have disappeared. His is a task formerly relegated to priest and pastor, to teacher and philosopher, but he must be all of these things when he deals with the psychoneuroses, and from his capacity for understanding human nature, and from his ability to probe successfully into the dark, fiercely guarded corners of the human mind, will come the ability to deal with these conditions.

THE NEW MANUAL TRAINING SHOP FOR TUBERCULOSIS PATIENTS

The Boston Tuberculosis Association has opened the new manual training shop for children at the Prendergast Preventorium in Mattapan.

This building has been made possible through the gift of Mrs. Joseph Newhall Smith in memory of her grandson who lived in Lynn, Massachusetts.

This addition to the equipment of the Preventorium will be used for the manual training of boys and teaching of cookery for the girls. Miss Spencer at the camp will give the cooking lessons and Mr. Hartin will teach the boys. This addition will add very much to the usefulness of the camp.

CORRESPONDENCE

MOTION PICTURES IN THE PUBLIC SCHOOLS OF BOSTON

The School Committee of the City of Boston
Department of School Hygiene

October 7, 1931.

To the Editor, *New England Journal of Medicine*,

The Department of School Hygiene of the Boston Public Schools will shortly introduce into the schools a course of visual instruction in health, hygiene, and sanitation, through the medium of available motion pictures.

The motion picture is admittedly one of the most valuable methods which may be employed in the teaching of health subjects in the public schools. The universal acceptance of this teaching method is proof of its value as a supplement to regular instruction in nearly every field of education. Motion pictures are particularly adapted to instruction in personal and public health hygiene. Pictures are now available which illustrate in an interesting and instructive manner the public health activities of the Federal, State, and Municipal governments and the hygiene of the child, the home, the school, and environment. Such subjects as the care of teeth, the correction of faulty posture, the bacterial causes of disease, the preventive treatment of diphtheria, tuberculosis, diet, the spread of disease by flies, the value of rest, sleep, exercise, fresh air, the sanitation of the home, and many other subjects too numerous to mention are effectively illustrated on the screen.

The motion picture vividly tells the story of accomplishments in the field of public health, of diseases which have been conquered and those which are under control; of diseases which are preventable and those for which specific remedies have been perfected. The screen may now be employed in

teaching school children, their parents and teachers, how disease is spread through the water and milk supply and the precautions which are taken by our public health organizations in safeguarding from pollution and contamination these and other food supplies. Nearly every health activity which is carried on in the interest of the public health or for the benefit of the individual may be presented on the screen.

The school children of today who are to be the citizens of tomorrow should possess some knowledge of the construction and the functional mechanism of the human body. They should be taught that the care of their bodies is their first duty and that the preservation of the public health is the best guarantee of the happiness, prosperity, and integrity of the Nation. They should be made health-conscious through education in the fundamental principles of health laws which are based on experimental facts and which may be clearly illustrated on the screen. A notable example of this type of motion picture is one which demonstrates the comparative value of milk, candy, and coffee as food. This experiment is conducted by sixth grade children in the classroom. White mice are used in the experiment and the end results prove conclusively the superior value of milk as a diet as is evidenced by the marked growth and development of mice fed on milk as compared with the loss of weight and strength of those mice fed on sugar and coffee. This is a simple experiment but it is a convincing one and it is bound to make a lasting impression upon the child who has witnessed the experiment. Pictures of this sort are available for demonstration on the screen. *The work of many hours, days, and weeks in the laboratory and studio may be shown in less than a half hour on the screen.*

The health motion pictures which will be used in the schools will be viewed first by the teachers and afterwards by the pupils. Later, these pictures will be shown to parents at parent-teacher meetings. This arrangement will make possible discussions between teacher and pupils in the classroom, and between children and their parents at home. Children will be encouraged to write their impressions of the picture they were permitted to view in order that some idea of their intelligent understanding of the health lessons taught by these pictures may be obtained.

We know of no more effective medium than the screen for the dissemination of health knowledge among school children, teachers, and parents. The textbook on physiology and hygiene which is used in schools throughout the Country is only too often prepared from the standpoint of completeness rather than from the point of view of the practical needs of the school child. And more often than is excusable the average textbook, which is prepared for the school child, and the average teacher who teaches physiology and hygiene and the principles of public health in the lower and higher grades of our schools, fall short of the goal primarily because the instruction offered is too technical, too complicated, and therefore, above the intellectual level of the grades for which the educational material was prepared. The motion picture tells the story simply, clearly, and with authority. Whenever the occasion demands, the health story may be dramatized or a touch of humor may be added for the entertainment of the child as well as for his instruction. All this is possible in motion pictures and almost impossible to include within the covers of a textbook.

The interest and the imagination of the school child must be appealed to and nothing short of the screen possesses that power of appeal. The number of permanent teeth in the mouths of human beings, the names and descriptions of the bones of the human skeleton, which is the smallest and which is the largest bone in the body, the number of red corpuscles and the number of white corpuscles no longer interest the school child, and his brain should not be crowded with these facts. The child memorizes them only to forget them as soon as it is convenient for him to do so. There is nothing in these facts to interest him, nothing to appeal to his imagination, nothing to impress him.

The pictorial presentation of useful and practical physiologic, hygienic, and sanitary facts will excite the child's interest and enthusiasm and after a time he will develop a health-mindedness which will be of practical value to him in all the years of his life.

Visual education is comparatively inexpensive and the cost will be less as the method is more popularly adopted.

Films may be purchased outright and a library of health motion pictures thus developed; or they may be borrowed from the libraries of our Commonwealth and from other State libraries, from insurance companies, and from certain industrial organizations, also from certain departments of the Federal Government. To reduce the cost of these films, an exchange with other communities could be arranged. The cost of a program of health education through the medium of motion pictures is infinitesimal compared with the invaluable information which the child may acquire.

Physicians should be especially interested in this practical method of health teaching in the public schools, first, because the teaching of physiology and hygiene and of public health matters in the public schools has not been accorded the prominent place in the school curriculum which these subjects deserve, and secondly, because eventually we shall develop through health motion pictures a health-minded citizenship possessing a broad understanding of public health matters. The development of such a type of citizen will make it less difficult for physicians and health authorities to cope with situations which require the coöperation of the whole community. The various "isms", "ists", and "aths",—the many and varied miracle cures which a gullible public so eagerly seizes upon the moment

they appear in the advertising columns of the newspapers, the medical quacks and charlatans who mercilessly mulct the public of vast sums of money annually, would find their fields of operation not so fertile and so profitable if the public were properly health educated.

If we are to succeed in our efforts to eradicate disease, to keep the public health as near the point of perfection as our modern scientific knowledge will permit, we must begin with the health education of the child in the schools. Our opportunities in this field of activity are tremendous. The giving of illustrated instruction in health, hygiene, and sanitation will result in the development of a more understanding and therefore of a more coöperative citizenship of the future. We shall make progress only if we march onward with the army of school children.

Very truly yours,

SOLOMON H. RUBIN, M.D.,
Acting Director of School Hygiene,
Boston Public Schools.

PUBLICITY COMMENTS RELATING TO RABIES

Mr. Editor,

Dear Sir:

I am enclosing a clipping from the September 1, 1931, *Our Dumb Animals*. Such articles on a table in a doctor's office are read by the patients and, as I have written to the editor of the paper, give a wrong impression to the reader. The clipping is enclosed as is the letter to the editor and his answer. The probable reason that rabies is so rare is because of the treatment. I am sending this to be printed as a warning to your readers about the magazines they put on their waiting-room tables. "Be sure and censor them."

Yours truly,

P. NETTLE, M.D.

282 South Main Street,
Bradford, Mass.

September 1, 1931
Our Dumb Animals

AN EXPERIENCE WITH RABIES

A young lad, in Sir Wilfred's kitchen while he and Lady Blunt were in Egypt, was bitten by a wolf-dog on February 14, 1921. He was given the Pasteur treatment but died the 11th of March. An old woman cook who went to his assistance was also quite badly bitten. She didn't take any treatment but nothing happened to her. In view of this he says:

"I called upon Dr. Ruffer at his villa at Ramleh. I went on purpose to consult him as a pupil of Pasteur. What he told me is briefly this: He said that whereas only 13% of bites inflicted by dogs proved by dissection to have been mad are followed by hydrophobia, it is more serious in case of a wolf-dog, 60% or 70% being a proportion of the bites followed by the disease. On the other hand, he told me that the Pasteur treatment itself kills a proportion of 2% of the cases where it is used. I asked him if he were bitten by a dog ascertained to be mad if he would take the treatment. He said, 'I think so, but I should first make my will.' His opinion is of value coming from so distinguished a disciple of Pasteur."

The amusing statement is also made that the old woman who came to the boy's relief and was bitten took some of the hair of the wolf with which to dress her wounds, and the heart of the dog was taken out for the boy to eat. The wolf appeared to be in healthy and normal condition, apparently hungry ran into the kitchen to get something to eat, the boy attempting to drive him out was bitten by him.

From Sir Wilfred Scawen Blunt's Diaries, Volume II, Page 6.

September 11, 1931.

Editor of *Our Dumb Animals*,

Dear Sir:

The headline, An Experience with Rabies, gives a story respecting the aspect of a scientific experience. However interesting an article may be, it should not be printed in such a form as to in any way mislead the reader. Here are the facts about rabies as it has occurred in the last five years in Massachusetts. I think it will be more enlightening than an occurrence ten years ago in Egypt.

In the last 5 years there were thirteen deaths from rabies in Massachusetts.

One patient had the Pasteur treatment 14 days after exposure. This was too late and death resulted.

One patient received treatment immediately. The bite was on the nose and eyelid where it is very serious as the virus drains directly into the skull and so infects the brain substance.

Eleven patients died without the treatment.

There were over 500 treatments by the Pasteur method and if the article is right (2% died from Pasteur treatment) there should have been over 10 deaths from it. Mr. Editor, can you tell me of a few cases that died this way during the past 5 years?

In fact, if I were bitten by a dog who had hydrophobia there would be no delay in administering Pasteur's life-saving treatment, Dr. Ruffer to the contrary notwithstanding.

Yours respectfully,

P. NETTLE, M.D.

The Massachusetts Society for the Prevention of Cruelty to Animals
The American Humane Education Society
The Angell Memorial Animal Hospital
170-184 Longwood Avenue, Boston, Mass.

September 21, 1931.

Paul Nettle, M.D.,
282 South Main Street,
Bradford, Mass.

My dear Dr. Nettle,

I appreciate your letter of September 11, and I had just a bit of fear when that article "An Experience with Rabies" went in the paper that somebody might think it did not give full value to the worth of the Pasteur treatment.

Nearly all of our doctors and employees here have been at one time or another bitten by a dog that had symptoms of rabies. Practically all of them, if I remember rightly, have taken the Pasteur treatment, and we certainly always suggest and advise it.

I have not the statistics for the past five years which you quote. The strange thing is that being the son of a physician and the father of a physician and associated with physicians all my life and having repeatedly asked many doctor friends if they had ever had a case of rabies, I have never found but one who said yes to that question. Certain as I am that the disease exists, it is still a rare one.

I am

Very truly yours,

FRANCIS H. ROWLEY, *President.*

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago, Ill.
September 25, 1931.

Editor, the *New England Journal of Medicine:*

Dear Doctor:

In addition to the articles enumerated in our letter of August 28 the following have been accepted:

Abbott Laboratories

Neocinchophen-Abbott Tablets, 7½ grains

Lederle Laboratories, Inc.

Diphtheria Toxoid, two 1 cc. syringe packages
Diphtheria Toxoid, two 1 cc. vial packages
Diphtheria Toxoid, one syringe package
Diphtheria Toxoid, one vial package
Solution Liver Extract Parenteral (Lederle)

E. R. Squibb & Sons

Diphtheria Toxin for the Schick Test, Ready to Use without Dilution
Scarlet Fever Streptococcus Toxin-Squibb, six 10 cc. vial packages
Squibb Liquid Petrolatum with Agar and Phenolphthalein

Yours truly,

W. A. PUCKNER, *Secretary,*
Council on Pharmacy and Chemistry.

RECENT DEATH

FINNIGAN—DR. PATRICK JOSEPH FINNIGAN, a Fellow of the Massachusetts Medical Society since 1884, died at his home in Cambridge, October 7, 1931, aged 73.

He was born in Worcester, March 12, 1858, was graduated A.B. at Holy Cross College in 1880, studied at St. Mary's College, Montreal, and at Harvard Medical School, where he received an M.D. in 1883.

In Cambridge he served on the school board and was attending physician to the Holy Ghost Hospital for Incurables.

Dr. Finnigan is survived by his widow Mrs. Margaret E. Finnigan, by one son and two daughters.

NEWS ITEMS

DR. L. E. PHANEUF ADDRESSES THE BRIDGEPORT MEDICAL ASSOCIATION—Dr. Louis E. Phaneuf, Professor of Gynecology at Tufts College Medical School, addressed the Bridgeport Medical Association at Bridgeport, Conn., on "Uterine Hemorrhages with Special Reference to Uterine Cancer," on October 6, 1931.

HARVARD MEDICAL SCHOOL NEWS

Scholarships in Harvard Medical School for the academic year of 1931-32 have been awarded as follows:

Edward M. Barringer, No. 1: George S. Baker.
Edward M. Barringer, No. 2: Joseph B. Doyle.
Gordon Bartlett: David G. Cogan.
Gordon Bartlett: Robert A. MacCready.
Matthew and Mary E. Bartlett: Robert C. Darling.
Lucius F. Billings: Meyer R. Whitehill.
Orlando W. Doe: Robert E. Jennings.
Joseph Eveleth, No. 1: Frank R. Pierce.
Joseph Eveleth, No. 2: Edward Budnitz.
Joseph Eveleth, No. 3: Carl A. Kunath.
Horace Putnam Farnham, No. 1: Joseph G. Bienkowski.
Horace Putnam Farnham, No. 2: Claude E. Welch.
Hilton, No. 1: Robert O. Wilson.
Hilton, No. 2: Alfred L. Duncombe.
William Otis Johnson: Rolf Lium.
Claudius M. Jones: Samuel L. Yee.
Alfred Hosmer Linder: William H. Goodson, Jr.
Joseph Pearson Oliver: Howard I. Suby.
Charles B. Porter: John R. Graham.
Flavius Searle: Merritt B. Low.
Charles P. Strong: David D. Rutstein.
Isaac Sweetser: Reeve H. Betts.
John Thomson Taylor: Prentiss L. Hyder.
Dr. Charles Walker, No. 1: Don W. Freeman.
Helen L. Walker, No. 2: Andrew M. Babey.
Anna G. Walker, No. 3: Leo Walzer.
Leslie W. Walker, No. 4: John V. Cantlon.
Abraham A. Watson: Carlton R. Souders.
Edward Wigglesworth: Hays R. Yandell.
Cotting Gift: Abraham Weinstein.
James Ewing Mears: Carl W. Walter.
Special Scholarship (1931): Leonard W. Brewer.
Franklin Reynolds: Charles F. Ferguson.

NOTICES

THE SECOND EXAMINATION OF THE AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The written examination must be taken by all applicants classified in Group 3, and will be held on Saturday, October 31, 1931, at 2 P. M., in the following cities:

New York City, Chicago, Philadelphia, Toronto, Canada, Indianapolis, Ind., Portland, Ore., Rochester, Minn., Iowa City, Ia., St. Louis, Mo., Boston, Mass., Ann Arbor, Mich., Baltimore, Md., Atlanta, Ga., Cincinnati, O., San Francisco, Cal., Denver, Colo., Galveston, Texas.

The examination will consist of ten questions on obstetrics and gynecology. Each candidate for Group 3 also will be required to submit typewritten reports on a total of fifty (50) obstetrical and gynecological operations which he has performed, and these case records are to be presented with his examination paper to his local examiner on October 31.

The practical, or oral, clinical and laboratory examination will be held in Chicago, Ill., on Tuesday, December 29, 1931, commencing at 9 A. M., and will be given to all applicants in Group 2 and Group 3. The candidates will be expected to identify and discuss three or four common obstetrical and gynecological pathologic specimens and the histological sections taken from them. The clinical part of the examination will be conducted in a hospital where an individual case will be discussed in detail with each candidate. An endeavor will be made to adapt the details of the oral examination to each candidate's experience and practice, and will be particularly directed to ascertain his familiarity with recent obstetrical and gynecological literature, the breadth of his clinical experience, and his general qualifications as a specialist in Obstetrics and Gynecology.

Each candidate in Group 3 will be expected to appear before the examiner or assistant examiner in the territorial district in which the candidate resides, unless special arrangements otherwise have been made in advance through the Secretary, for the written examination on October 31. He should have satisfied the Secretary before October 1 as to which of the two cities of his district he will present himself for examination so that his credentials may be forwarded to the proper examiner in advance. The territorial districts, the examiner's names, and the places of examination, appear below.

In each instance the examination papers and case records will be sent to be reviewed and marked by an examiner in another district from that in which the candidate resides and tries his examination.

TERRITORIAL DISTRICTS

1. New York; Maine; New Hampshire; Vermont; Massachusetts; Rhode Island; Connecticut.
   Examiner: Dr. Walter T. Dannreuther, New York City.
   Assistant Examiner: Dr. Louis Phaneuf, Boston.
2. Illinois; Michigan; Wisconsin.
   Examiner. Dr. Fred L. Adair, Chicago.
   Assistant Examiner: Dr. Reuben Peterson, Ann Arbor, Mich.
3. Pennsylvania; New Jersey; Delaware; Maryland; Virginia; West Virginia; District of Columbia.
   Examiner: Dr. Edward A. Schumann, Philadelphia.
   Assistant Examiner: Dr. Emil Novak, Baltimore.
4. North Carolina; South Carolina; Georgia; Florida; Alabama; Louisiana; Mississippi.
   Assistant Examiner: Dr. J. R. McCord, Atlanta, Georgia.
5. Ohio; Indiana; Tennessee; Kentucky.
   Examiner: Dr. Joseph L. Baer (of Chicago, Ill.); Indianapolis, Ind.
   Assistant Examiner: Dr. Magnus A. Tate, Cincinnati, Ohio.
6. Washington; Oregon; California; Nevada.
   Examiner: Dr. Jennings Litzenberg (of Minneapolis, Minn.); Portland, Oregon.
   Assistant Examiner: Dr. Frank W. Lynch, San Francisco, Cal.
7. Minnesota; North Dakota; South Dakota; Idaho; Montana; Wyoming.
   Examiner: Dr. Robert D. Mussey, Rochester, Minn.
8. Iowa; Nebraska; Colorado; Utah.
   Examiner: Dr. E. D. Plass, Iowa City, Iowa.
   Assistant Examiner: Dr. C. B. Ingraham, Denver, Colo.
9. Missouri; Kansas; Nebraska; Arkansas; Texas; Arizona; Oklahoma; New Mexico.
   Examiner: Dr. G. D. Royston, St. Louis, Mo.
   Assistant Examiner: Dr. W. R. Cooke, Galveston, Texas.
10. Canada. Assistant Examiner: Dr. William B. Hendry, Toronto, Canada.

Candidates in Groups 2 and 3 will report to the entire Board in Chicago on December 29 through the direction of Dr. Fred L. Adair, University of Chicago Clinic.

Candidates will be notified, individually, later, of the exact address at which their examinations will be held.

Candidates in Group 3 may take their clinical, hospital examination on the morning of the same day and at the same place as the written examination (October 31), but must also meet the entire Board in Chicago for the laboratory and the oral examination.

For further information address the Secretary, Dr. Paul Titus, 1015 Highland Building, Pittsburgh, Pa.

REMOVAL

Dr. Edward Winslow Karcher wishes to announce the removal of his office from 353 Commonwealth Avenue to 416 Marlborough Street, Boston.

ANNOUNCEMENT OF LECTURES BY PROFESSOR HENRY E. SIGERIST AT THE INSTITUTE OF THE HISTORY OF MEDICINE AT THE JOHNS HOPKINS SCHOOL OF MEDICINE

PROGRAM

A course of six lectures will be given on "The Evolution of Medicine in Its Cultural Aspects":

October 15—Primitive conceptions of disease.

October 22—The religious character of oriental medicine.

October 29—The philosophical attitude of the Greek physicians toward medicine.

November 5—The dawn of modern medicine.

November 12—The cultural background of modern medicine.

November 19—The development of medicine during the nineteenth century.

These lectures will be given in the auditorium of the School of Hygiene and Public Health, 615 North Wolfe Street, at 5:00 P. M. on the above dates.

A seminar course will be given on "The Interpretation of Medical Texts":

October 16—The Edwin Smith Surgical Papyrus.

October 23—The tablets relating cures found at Epidauros.

October 30—Problems of the Corpus Hippocraticum.

November 6—The fragments of the school of Empirics.

November 13—The treatise on "The Interrogation of Patients" by Rufus of Ephesus.

November 20—Latin medical texts of the early Middle Ages.

This course will be given in the rooms of the Institute of the History of Medicine, Welch Medical Library, 1900 East Monument Street, at 5:00 P. M. on the above dates.

MEDICAL CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 P. M. on Thursday, October 22, in the Amphitheatre of the Peter Bent Brigham Hospital, a medical clinic will be given by Dr. Henry A. Christian, to which physicians are cordially invited. The clinics will be held regularly on Thursday afternoons.

RADIO HEALTH MESSAGES

Sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

Courtesy WBZA. Thursdays at 5:17 P. M.

October

15 Sunlight and Ultra-violet Rays
22 Hospitals—Then and Now
29 What the Public Should Know of Diabetes

November

5 High Blood Pressure
12 The Care of Pulmonary Tuberculosis
19 Accidents in the Home
26 Fatigue as a Symptom of Disease

December

3 Overweight—Cause and Prevention
10 Can We Prolong Life?
17 Pasteurized or Raw Milk
24 Public Health in the Coming Year
31 Mental Health

STATE HOUSE BROADCAST

Sponsored by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 12:30 P. M.

The various activities of the Department are discussed by the Directors of its nine Divisions.

RADIO HEALTH FORUM

Directed by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 4:50 P. M.

Queries from the public are answered under the sponsorship of the Department.

Questions on Health and Prevention of Disease may be sent to: Radio Health Forum, State Department of Public Health, State House, Boston.

PROGRAM

SPECIAL SERIES OF BROADCASTS

Sponsored by the Massachusetts Department of Public Health. Courtesy WEEI. Mondays 7:15 P. M.

Cancer

1931

October

19 What the World Is Doing About Cancer
Clarence C. Little, M.D.

26 Fear of Cancer
Kendall Emerson, M.D.

November

2 How To Use a Cancer Clinic
George H. Bigelow, M.D.

9 A Hopeful Note About Cancer
Timothy Leary, M.D.

Health from Zero to Ninety

16 Prenatal and Infant Health
Harold C. Stuart, M.D.

23 Preschool and School Health
Stanley H. Osborn, M.D.

30 Health and the College Student
Mary DeKruif, M.D.

December

7 Health and Safety of the Young Adult
C.-E. A. Winslow, Ph.D.

14 Health At and After the Prime of Life
Herbert L. Lombard, M.D.

WHITE HOUSE CONFERENCE ON CHILD HEALTH AND PROTECTION

Round Tables

December

21 Round Table No. 1—Why Another Conference?
Conducted by George H. Bigelow, M.D.

28 Round Table No. 2—How Much Care Does the Well Child Need?
Conducted by Mr. Frank W. Kiernan

1932

January

4 Round Table No. 3—Health in Education—Education in Health
Conducted by Raymond Patterson, Ph.D.

11 Round Table No. 4—What a Community Owes to Its Children
Conducted by Lila Owen Burbank, M.D.

18 Round Table No. 5—Unto the Least of These
Conducted by Mr. Alfred F. Whitman

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces the following-named open competitive examinations:

Senior Medical Officer: Tuberculosis, neurology—psychiatry (either one, or the two combined), roentgenology, bacteriology—pathology (either one, or the two combined), eye, ear, nose and throat (any one, or in any combination), orthopedic surgery, internal medicine and diagnosis, general surgery, urology, cardiology.

Medical Officer, Associate Medical Officer: Cardiology, child hygiene, eye, ear, nose and throat, genito-urinary (urology), internal medicine and diagnosis, neuropsychiatry, pathology and bacteriology, roentgenology, surgery (general or orthopedic), tuberculosis, venereal disease.

Applications for the positions of senior medical officer, medical officer, and associate medical officer must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than December 30, 1931, except that the Commission reserves the right to issue subsequent notice closing the receipt of applications before that date.

The examinations are to fill vacancies in the Veterans' Administration, Public Health Service, Indian Service, Coast and Geodetic Survey, and Panama Canal Zone.

The entrance salary for senior medical officer is $4,600 a year, for medical officer is $3,800 a year, and for associate medical officer is $3,200 a year.

Competitors will not be required to report for examination at any place, but will be rated on their education, training, and experience.

Certain specified education and experience required.

Social Service Worker (Prisons Bureau)

Applications for the position of social service worker (Prisons Bureau) must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than October 22, 1931.

The examination is to fill a vacancy in the position of junior warden's assistant, Federal Industrial Institution for Women, Alderson, W. Va., and vacancies requiring similar qualifications, throughout the United States.

The entrance salary is $2,000 a year, less $300 a year for maintenance.

Competitors will be rated on answers to practical questions in the field of social work.

Applicants must have been graduated from a standard high school or have completed 14 units of high school work acceptable for college entrance, and in addition must have had at least two years of full-time training in a college, university, or school of social service of recognized standing. Applicants must also have had at least two years' experience in social service work, or similar experience of equal value in correctional institutions for adults.

Full information may be obtained from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city or from the United States Civil Service Commission, Washington, D. C.

REPORTS AND NOTICES OF MEETINGS

THE ANNUAL MEETING OF THE FOUR WESTERN COUNTIES MEDICAL ASSOCIATION

This meeting was held at the Monson State Hospital, Palmer, Mass., Thursday, October 8, 1931, at 1:30 P. M. Speaker: Lloyd Aycock, M.D., Harvard Infantile Paralysis Commission. Subject: Infantile Paralysis.

THE NEW ENGLAND SOCIETY OF PSYCHIATRY

The annual fall meeting of the New England Society of Psychiatry was held at Brattleboro Retreat, Brattleboro, Vermont, with Dr. Horace G. Ripley, superintendent, on October 8, 1931. This meeting was presided over by Dr. John A. Houston, president, and was largely attended by psychiatrists from all over New England and New York State. Dedication exercises of the Ripley Nurses' Home took place at this meeting.

At the business meeting which was held at twelve o'clock 22 psychiatrists were elected to active membership. At twelve-thirty an excellent dinner was served, after which Dr. William A. Bryan, superin-

tendent of the Worcester State Hospital, gave an interesting address, having for his subject the "Review of the Research Program at the Worcester State Hospital."

HARLAN L. PAINE, M.D., *Secretary-Treasurer.*

SUFFOLK DISTRICT MEDICAL SOCIETY

CENSORS' MEETING

The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, No. 8 The Fenway, Thursday, November 5, 1931, at 4:00 o'clock.

Candidates should make personal application to the Secretary, and present their medical diploma at least one week before the examination.

LELAND S. MCKITTRICK, *Secretary.*
205 Beacon Street, Boston.

MASSACHUSETTS MEDICAL BENEVOLENT SOCIETY

There will be a meeting of the Massachusetts Medical Benevolent Society on October 22 at 8 P. M. in the Boston Medical Library, 8 The Fenway, Boston.

PROGRAM

A Short History of the Massachusetts Medical Benevolent Society—Robert M. Green, M.D.

Whom and How We Help—Roger I. Lee, M.D.

GEORGE G. SEARS, M.D., *President.*
HILBERT F. DAY, M.D., *Secretary.*

MASSACHUSETTS GENERAL HOSPITAL

A Clinical Meeting of the Staff of the Massachusetts General Hospital will be held in the Moseley Memorial Building, on Wednesday, October 28, 1931, at 8:15 P. M.

PROGRAM

1. Business Meeting of the Suffolk District Medical Society.
2. Symposium on Infantile Paralysis.
   Epidemiological Aspect and Present Epidemic—Dr. Gaylord W. Anderson, Deputy Commissioner of Public Health of Massachusetts.
   Pathological Aspects—Dr. Tracy B. Mallory, Instructor in Pathology, Harvard Medical School; Pathologist at Massachusetts General Hospital. Dr. Charles S. Kubik, Assistant in Neurology and Neuropathology, Massachusetts General Hospital and Harvard Medical School.

The Drinker Respirator—Mr. Philip Drinker, Assistant Professor of Industrial Hygiene, Harvard Medical School.

Cases Treated with Drinker Respirator at Massachusetts General Hospital. Dr. Neil L. P. Crone, Resident in Neurology, Massachusetts General Hospital.

Physicians, Medical Students and Nurses are cordially invited to attend.

COMMITTEE ON HOSPITAL MEETINGS.

HARVARD MEDICAL SCHOOL

LECTURES ON "THE CARE OF THE PATIENT"

Amphitheater C at 5 P. M. as follows:

Wednesday, October 21—Dr. Gerald B. Webb, Colorado Springs, Colorado: "The Prescription of Literature."

Wednesday, October 28—Dr. Stewart R. Roberts, Atlanta, Georgia: "The Art and Human Nature."

THE GEORGE W. GAY LECTURES ON "MEDICAL ETHICS"

Amphitheater C at 5 P. M. as follows:

Wednesday, November 4—Dr. John M. Birnie, Springfield, Massachusetts: "Ethics for the Doctor."

Wednesday, November 18—Dr. John M. Birnie, Springfield, Massachusetts: "Independence for the Doctor."

HARVARD MEDICAL SOCIETY

The first meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Van Dyke Street entrance), Tuesday evening, October 27, 1931, at 8:15 o'clock.

PROGRAM

Presentation of Cases.

On the peptic genesis of gastric and duodenal ulcer, especially in the light of ulcers in Meckel's diverticulum. By Arvid Lindau, M.D., of Lund, Sweden.

The possible relation of the central (vegetative) nervous system to peptic ulcers. By Harvey Cushing, M.D.

Experimental observations on the production of ulcers by pilocarpine. By Richard U. Light, M.D.

Medical students, nurses and physicians are cordially invited to attend.

JOHN HOMANS, *Secretary.*

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

October 16—New England Roentgen Ray Society. See notice on page 746, issue of October 8.

October 19-23—International Assembly of the Interstate Postgraduate Medical Association of North America. See page 1125, issue of May 21, and page 555, issue of September 10.

October 20—South End Medical Club. See notice on page 702, issue of October 1.

October 19-30—Graduate Fortnight of the New York Academy of Medicine. See page 1230, issue of June 4, and page 465, issue of August 27.

October 21 and 28—Harvard Medical School. Lectures on "The Care of the Patient." See notice above.

October 22—Medical Clinic at the Peter Bent Brigham Hospital. See page 789.

October 22—Massachusetts Medical Benevolent Society. See notice elsewhere on this page.

October 27—Harvard Medical Society. See notice above.

October 28—Massachusetts General Hospital. See notice elsewhere on this page.

November 4—New England Heart Association. See notice on page 746, issue of October 8.

November 4 and 18—Harvard Medical School. The George W. Gay Lectures on "Medical Ethics." See notice above.

November 25 - May 6—The William Harvey Society. See page 745, issue of October 8.

April 4-8, 1932—The American College of Physicians. See notice on page 1232, issue of June 4.

Autumn 1931—Spring 1932—International Medical Postgraduate Courses in Berlin. See page 468, issue of August 27.

DISTRICT MEDICAL SOCIETIES

Franklin District Medical Society

Meetings will be held on the second Tuesday of November, January, March and May at the Weldon, Greenfield, at 11 A. M.

CHARLES MOLINE, Secretary.

Middlesex East District Medical Society

At a meeting of the executive committee the following schedule for the Middlesex East District Medical Society was arranged:

November—At Wakefield.

January—At Melrose.

March—At Reading.

May—At Woburn.

All meetings on the second Wednesday of each month unless otherwise announced.

Suffolk District Medical Society

November 5—Censors' meeting. See page 791.

Worcester District Medical Society

Wednesday evening, November 11, 1931—Worcester Chamber of Commerce Rooms, Franklin Street, Worcester, Mass. 7:45—Program: Bone Lesions of Congenital Syphilis, by Dr. Stafford McLean, Clinical Professor, Diseases of Children, Columbia University College of Physicians and Surgeons, New York City.

Wednesday evening, December 9, 1931—Worcester Chamber of Commerce Rooms, Franklin Street, Worcester, Mass. 7:45—Program: Subject in the field of Eye, Ear, Nose and Throat to be announced later.

Wednesday evening, January 13, 1932—Worcester City Hospital, Worcester, Mass. 6:30—Dinner, complimentary by City Hospital. 7:45—Program: To be announced later.

Wednesday evening, February 10, 1932—Worcester State Hospital. 6:30—Dinner, complimentary by the Worcester State Hospital. 7:45—A psychiatric program to be announced later.

Wednesday evening, March 9, 1932—Memorial Hospital, Worcester, Mass. 6:30—Dinner, complimentary by Memorial Hospital. 7:45—A pediatric meeting with subjects to be announced later.

Wednesday evening, April 13, 1932—Grafton State Hospital, North Grafton, Mass. 6:30—Dinner, complimentary by Grafton State Hospital. 7:45—Program to be announced later.

Wednesday afternoon and evening, May 11, 1932—Annual Meeting. Program to be announced later.

ERWIN C. MILLER, Secretary.

BOOK REVIEWS

"Scharlach—Atiologie, antitoxische Serumtherapie und Schutzimpfung." By PROFESSOR R. KRAUS (et al). Published by Urban and Schwarzenberg.

This is a very good monograph of three hundred odd pages on Scarlet Fever. The historical development is good and the references are particularly copious. The authors seem determined that the work of Moser shall not be forgotten and when they come to discussions of the various anti-scarlet fever streptococcus sera are inclined to the use of personal names. Thus, while three distinct techniques should be associated with the names of Moser, Dick and Dochez, if they are to be critically separated, the Moser serum (recently concentrated by later biologic methods) is frequently compared to the *"Dick-Dochez serum"*. On the other hand, the broad term used to include all potent sera is *"Moser-Dick"*, and the authors wistfully regret that Moser didn't discover "the toxin" twenty-five years ago. From the clinician's point of view it would seem that our ability to concentrate these sera is vastly more important than the recognition of a toxin.

Aside from this righteous tinge the story is well told. The value of the serum is affirmed, particularly in severe cases, although there seem to be no convincing statistics available as yet from any source. A great deal is said about the possible usefulness of the Schultz-Charlton reaction in diagnosis. In regard to the Dick test the following is pertinent: "We would be pleased if the theory of the Dick test and practical experience with it agreed in some measure, but we cannot ratify this from our experience in the Franz Josef Spitals in Vienna. The Dick test has not proved itself as a diagnostic weapon nor as a specific indicator of immunity or susceptibility in our investigations. The failure of the Dick test does not, however, mitigate against the streptococcus as the etiologic agent."

Such recorded observations as "spleen enlarged to percussion, not palpable", give the whole a good Teutonic flavor.

Practical X-Ray Treatment. By ARTHUR W. ERSKINE, M.D., Bruce Publishing Company, Saint Paul, Minnesota. Price $3.50.

The author has succeeded in presenting in a very condensed form most of the data necessary for an intelligent appliance of the roentgen ray in the treatment of diseases. The book contains 116 pages, and there are 56 illustrations or charts. The presentation is more of a laboratory manual than a textbook. The known facts are clearly stated without an attempt to discuss theories or probabilities, difficult mathematical formulae are avoided, and the language used is as simple as possible in a highly technical subject. One might wish that a more extensive use of captions to explain the graphs and charts had been made. That in the chapters on "Non-Malignant and Malignant Conditions" the discussion was more complete. In the treatment of Carcinoma of the Breast the author apparently advises against the so-called radical operation, substituting for it simple amputation of the breast with subsequent x-ray treatment. The reviewer would consider this a rather radical departure from what is generally accepted as the proper method of surgical treatment. On the whole the book is very good, however, and especially to the beginner in Roentgen Therapy; it can also be used as a guide in establishing a standard technique.

Les Premiers Jours du Nouveau-Né. By DRS. MARCEL METZGER and ANDRE HERAUX. Published by Gauthier-Villars et Cie.

This volume of 44 pages consists of a very large number of short descriptive paragraphs dealing with phenomena which are observable during the first few days after birth. There is almost no discussion or emphasis and to one not familiar with the authors' work the volume seems of very dubious value.

There are, however, many facts of considerable interest and it might be a useful book of reference for anyone who wishes to review a subject in this manner.